March 1, 2005

TO: Leslie Rogers, Federal Transit Administration
Robert Hollis, Federal Highway Administration
Victor Mendez, Arizona Department of Transportation
Stephen Owens, Arizona Department of Environmental Quality
Ken Driggs, Regional Public Transportation Authority/ Valley Metro
Joy Rich, Maricopa County Air Quality Department
Maxine Leather, Central Arizona Association of Governments
Don Gabrielson, Pinal County Air Quality Control District
Weinke Tax, U.S. Environmental Protection Agency, Region IX
Other Interested Parties

FROM: Dean Giles, Air Quality Planning Program Specialist

SUBJECT: CONSULTATION ON PROPOSED TRANSPORTATION CONFORMITY PROCESSES FOR THE 2005 MAG CONFORMITY ANALYSES

On November 2, 2004, MAG distributed for comment the proposed processes to be applied in the upcoming conformity analysis for the FY 2004-2007 MAG Transportation Improvement Program and Regional Transportation Plan, as amended. Since that time, MAG revalidated the transportation models which has resulted in modifications to the processes. Therefore, MAG is redistributing the proposed processes, including the modifications, to be used for the conformity analysis for the FY 2004-2007 MAG Transportation Improvement Program and Regional Transportation Plan. These proposed processes also describe the models, associated methods, and assumptions to be used for the conformity analysis for the FY 2006-2010 MAG Transportation Improvement Program and Regional Transportation Plan. Please provide any comments regarding this material by March 23, 2005.

On February 15, 2005, MAG revalidated the transportation models for 2002, which altered several assumptions documented in the proposed transportation conformity processes distributed for interagency consultation on November 2, 2004. The modifications include: (1) updated Highway Performance Monitoring System reconciliation factors (Table A-4); (2) revised estimated versus observed speeds in 2002 (Table A-5); (3) improved new statistics for actual versus estimated traffic volumes in 2002; (4) new 2002 baseline emissions (Table A-2); and (5) new interim emissions tests for the eight-hour ozone nonattainment area.

The information being transmitted for consultation is organized as follows:

- Attachment A documents the models, associated methods, and assumptions for use in regional emissions analyses.

- Attachment B documents the process for ensuring expeditious implementation of transportation control measures.
- Attachment C documents the process for types of projects considered exempt from conformity requirements.
- Attachment D documents the process for identifying projects which require PM-10 hot-spot analysis.

If you have any questions, please call me at (602) 254-6300.

Attachments

cc: Nancy Wrona, Arizona Department of Environmental Quality

ATTACHMENT A

DRAFT

MODELS, ASSOCIATED METHODS, AND ASSUMPTIONS FOR USE IN REGIONAL EMISSIONS ANALYSES

In accordance with the transportation conformity rule 40 CFR 93.105(c)(1)(i), MAG is conducting consultation for purposes of "evaluating and choosing a model (or models) and associated methods and assumptions to be used in hot-spot analyses and regional emissions analyses". In February 1996, the Maricopa Association of Governments (MAG) Regional Council adopted conformity consultation processes in response to federal and state requirements (MAG, 1996a). The MAG process M-1 directly addresses the requirement for periodic consultation on models, associated methods, and assumptions to be used in hot-spot analyses and regional emissions analyses. The process indicates that regional emissions analyses are to use the latest EPA-approved motor vehicle emissions models and that all model inputs use the latest planning assumptions as required in 40 CFR Sections 93.110-111.

The agencies consulted on the 2005 Conformity Analyses document are the Federal Highway Administration, Federal Transit Administration, United States Environmental Protection Agency (EPA), Arizona Department of Environmental Quality, Arizona Department of Transportation, Regional Public Transportation Authority, Maricopa County Environmental Services Department, Pinal County Air Quality Control District, the Central Arizona Association of Governments, and MAG member agencies (e.g. Maricopa County, cities, towns, and Indian communities).

It is anticipated that MAG will be performing two conformity analyses in the first half of 2005. According to EPA regulations, the first conformity determination for the eight-hour ozone standard must be completed by June 15, 2005. On November 2, 2004, MAG distributed for interagency consultation the proposed transportation conformity processes to be applied for the 2005 MAG Conformity Analysis on the FY 2004-2007 MAG TIP and Regional Transportation Plan for the new eight-hour ozone standard. Consultation on that document concluded on December 20, 2004. Since that time, MAG revalidated the transportation models which has resulted in modifications to the processes. Therefore, MAG is redistributing the proposed processes, including the modifications, to be used for the conformity analysis for the FY 2004-2007 TIP and Regional Transportation Plan.

In addition, a second conformity analysis is required for the upcoming FY 2006-2010 MAG Transportation Improvement Program and Regional Transportation Plan. These proposed transportation conformity processes also describe the models, associated methods, and assumptions to be used for the 2005 MAG Conformity Analysis for the FY 2006-2010 TIP and Regional Transportation Plan. A conformity finding on the new FY 2006-2010 TIP and Regional Transportation Plan is not anticipated until August 2005, after the June 15, 2005 EPA deadline for completing the first conformity determination for the eight-hour ozone standard.

The following sections describe the proposed approach for regional emissions analyses including the methodology, latest planning assumptions, transportation modeling, and air quality modeling to be applied for the 2005 MAG Conformity Analyses.

I. PROPOSED METHODOLOGY FOR THE 2005 MAG CONFORMITY ANALYSES

The criteria for determining conformity of transportation programs and plans under the federal conformity rule (40 CFR Parts 51 and 93) and the applicable conformity tests for the Maricopa County nonattainment area are summarized in this section. The 2005 MAG Conformity Analyses will be prepared based on these criteria and tests. Presented first is a review of the development of the applicable conformity rule and guidance procedures, followed by summaries of conformity rule requirements, air quality designation status, conformity test requirements, and analysis years.

FEDERAL AND STATE CONFORMITY RULES

Clean Air Act Amendments

Section 176(c) of the Clean Air Act (CAA, 1990) requires that Federal agencies and Metropolitan Planning Organizations (MPOs) not approve any transportation project, program, or plan which does not conform with the approved State Implementation Plan (SIP). The 1990 amendments to the Clean Air Act expanded Section 176(c) to more explicitly define conformity to an implementation plan to mean:

> Conformity to the plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards; and that such activities will not (i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The expanded Section 176(c) also provided conditions for approval of transportation plans, programs, and projects; requirements that the Environmental Protection Agency promulgate conformity determination criteria and procedures no later than November 15, 1991; and a requirement that States submit their conformity procedures to EPA by November 15, 1992. The initial November 15, 1991 deadline for conformity criteria and procedures was not met by EPA.

Federal Rule

Supplemental interim conformity guidance was issued on June 7, 1991 (EPA/DOT, 1991a and 1991b) for carbon monoxide, ozone, and particulate matter less than or equal to ten microns in diameter. The applicable period of this guidance was designated as Phase 1 of the interim period.

EPA subsequently promulgated the Conformity Final Rule, in the November 24, 1993 *Federal Register* (EPA, 1993). The Rule became effective on December 27, 1993. The federal Transportation Conformity Final Rule has been revised several times since its initial release. The first set of amendments, finalized on August 7, 1995, (EPA, 1995a) aligned the dates of conformity lapses due to SIP failures with the application of Clean Air Act highway sanctions for certain ozone areas and all areas with disapproved SIPs with a protective finding.

The second set of amendments was finalized on November 14, 1995 (EPA, 1995b). This set allowed any transportation control measure (TCM) from an approved SIP to proceed during a conformity lapse, and aligned the date of conformity lapses with the date of application of Clean Air Act highway sanctions for any failure to submit or submissions of an incomplete control strategy SIP. The second set also corrected the nitrogen oxides provisions of the transportation conformity rule consistent with the Clean Air Act and previous commitments made by EPA. Finally, the amendments extended the grace period before which areas must determine conformity to a submitted control strategy SIP, and established a grace period before which transportation plan and program conformity must be determined in recently designated nonattainment areas. This grace period was later overturned in *Sierra Club v. EPA* in November 1997.

The third set of amendments was finalized August 15, 1997 (EPA, 1997a). These amendments streamlined the conformity process by eliminating the reliance on the classification system of "Phase II interim period," "transitional period," "control strategy period," and "maintenance period" to determine whether the budget test and/or emission reduction tests apply. The amendments also changed the time periods during which the budget test and the "Build/No Build" test are required.

To incorporate provisions from the *Sierra Club v. EPA* court decision, EPA promulgated an amendment to the transportation conformity rule on April 10, 2000 that eliminated a one-year grace period for new nonattainment areas before conformity applies (EPA, 2000b). Then on August 6, 2002, the EPA promulgated an amendment to the transportation conformity rule which requires conformity to be determined within 18 months of the effective date of the EPA *Federal Register* notice on an budget adequacy finding in an initial SIP submission and established a one-year grace period before conformity is required in areas that are designated nonattainment for a given air quality standard for the first time (EPA, 2002b).

On July 1, 2004, EPA published the final rule, Transportation Conformity Rule Amendments for the New 8-hour Ozone and PM2.5 National Ambient Air Quality Standards and Miscellaneous Revisions for Existing Areas; Transportation Conformity Rule Amendments - Response to Court Decision and Additional Rule Changes (EPA, 2004a). The rule describes transportation conformity requirements for the new eight-hour ozone and fine particulate matter (PM-2.5) standards. The rule also incorporates existing EPA and United States Department of Transportation (USDOT) guidance that implements the March 2, 1999, court decision and provides revisions that clarify the existing regulation and improve its implementation. On July 20, 2004, EPA issued a *Federal Register* notice that corrects two errors in the preamble to the July 1, 2004 final rule.

State Rule

State rules for transportation conformity were adopted on April 12, 1995, by the Arizona Department of Environmental Quality (ADEQ), in response to requirements in Section 176(c)(4)(C) of the Clean Air Act as amended in 1990 (ADEQ, 1995). These rules became effective upon their certification by the Arizona Attorney General on June 15, 1995 and, as required by the federal conformity rule, were submitted to EPA as a revision to the State transportation conformity SIP.

To date, a State transportation conformity SIP has not received approval by EPA. Section 51.390(b) of the federal conformity rule states: "Following EPA approval of the State conformity provisions (or a portion thereof) in a revision to the applicable implementation plan, conformity determinations would be governed by the approved (or approved portion of the) State criteria and procedures." The federal transportation conformity rule therefore still governs, as a transportation conformity SIP has not yet been approved for this area.

The State rule specifies that MPOs (i.e., MAG, for this region) must develop specific conformity guidance and consultation procedures and processes. MAG has developed and adopted two conformity guidance documents to meet State requirements. MAG developed the "Transportation Conformity Guidance and Procedures" document, which was adopted initially on September 27, 1995 by the MAG Regional Council. The document was revised by the MAG Regional Council on March 27, 1996 (MAG, 1996b). This guidance document addresses both the determination of "regional significance" status for individual transportation projects, and the process by which regionally significant projects may be approved.

MAG also developed the "Conformity Consultation Processes" document, which was adopted on February 28, 1996 by the MAG Regional Council (MAG, 1996a). This guidance document details the public and interagency consultation processes to be used in the development of regional transportation plans, programs, and projects within the Maricopa County nonattainment area.

Case Law

On November 14, 1997, the U.S. Court of Appeals for the District of Columbia issued an opinion in *Sierra Club v. EPA* involving the 1995 transportation conformity amendment that allowed new nonattainment areas a one-year grace period. Under this ruling, conformity applied as soon as an area was designated nonattainment. The EPA issued a final rule on April 10, 2000 in the *Federal Register* deleting 40 CFR 93.102(d) that allowed the grace period for new nonattainment areas (EPA, 2000b). Then, on October 27, 2000, the FY 2001 EPA Appropriations bill included an amendment to Section 176(c) of the Clean Air Act that adds the one-year grace period to the statutory language.

On March 2, 1999, the U.S. Court of Appeals for the District of Columbia issued an opinion in *Environmental Defense Fund v. EPA* involving the 1997 transportation conformity amendments. In general, the court struck down 40 CFR 93.120(a)(2) which permitted a 120-day grace period after

disapproval of a SIP; determined that the EPA must approve a "safety margin" prior to its use for conformity in 40 CFR 93.124(b); concluded that a submitted SIP budget must be found by EPA to be adequate, based on criteria found in 40 CFR 93.118(e)(4) before it can be used in a conformity determination; and ended a provision that allowed "grandfathered" projects to proceed during a conformity lapse. Following the court ruling, the EPA and USDOT issued guidance to address implementation of conformity requirements based on the court findings. The EPA issued guidance contained in a May 14, 1999 memorandum (EPA, 1999c). In addition, the USDOT issued guidance on June 18, 1999 that incorporates all USDOT guidance in response to the court decision in a single document (USDOT, 1999). On July 1, 2004, transportation conformity rule amendments were published in the *Federal Register* to incorporate provisions of the *Environmental Defense Fund v. EPA* court decision. Table A-1 summarizes the criteria for conformity determinations for transportation projects, programs, and plans, as specified in amendments to the federal conformity rule.

CONFORMITY RULE REQUIREMENTS

The federal regulations identify general criteria and procedures that apply to all transportation conformity determinations, regardless of pollutant and implementation plan status. These include:

1) *Conformity Tests* — Sections 93.118 and 93.119 specify emission tests (budget and interim emissions) that the TIP and RTP must satisfy in order for a determination of conformity to be found. The final transportation conformity rule issued on July 1, 2004, requires a submitted SIP motor vehicle emissions budget to be affirmed as adequate by EPA prior to use for making conformity determinations. The budget must be used on or after the effective date of EPA's finding of adequacy.

2) *Methods / Modeling:*

   Latest Planning Assumptions — Section 93.110 specifies that conformity determinations must be based upon the most recent planning assumptions in force at the time the conformity analysis begins, which is "the point at which the MPO begins to model the impact of the proposed transportation plan or TIP on travel and/or emissions. New data that becomes available after an analysis begins is required to be used in the conformity determination only if a significant delay in the analysis has occurred, as determined through interagency consultation." (EPA, 2004a) This section of the conformity rules also requires reasonable assumptions to be made with regard to transit service and changes in projected fares.

   Latest Emissions Models — Section 93.111 requires that the latest emission estimation models specified for use in SIPs must be used for the conformity analysis.

3) *Timely Implementation of TCMs* — Section 93.113 provides a detailed description of the steps necessary to demonstrate that the new TIP and RTP are providing for the timely

TABLE A-1
CONFORMITY CRITERIA FROM THE FINAL RULE

Applicability	Pollutant	Section	Requirement
All Actions at All Times	CO, Ozone, PM-10	93.110	Latest Planning Assumptions
		93.111	Latest Emissions Model
		93.112	Consultation
Transportation Plan (RTP)	CO, Ozone, PM-10	93.113(b)	TCMs
		93.118 and/or 93.119	Emissions Budget and/or Interim Emissions
TIP	CO, Ozone, PM-10	93.113(c)	TCMs
		93.118 and/or 93.119	Emissions Budget and/or Interim Emissions
Project (From a Conforming Plan and TIP)	CO, Ozone, PM-10	93.114	Currently Conforming Plan and TIP
		93.115	Project From a Conforming Plan and TIP
	CO and PM-10	93.116	CO and PM-10 Hot-Spots
	PM-10	93.117	PM-10 and PM-2.5 Control Measures
Project (Not From a Conforming Plan or TIP)	CO, Ozone, PM-10	93.113(d)	TCMs
		93.114	Currently Conforming Plan and TIP
	CO and PM-10	93.116	CO and PM-10 Hot-Spots
	PM-10	93.117	PM-10 and PM-2.5 Control Measures
	CO, Ozone, PM-10	93.118 and/or 93.119	Emissions Budget and/or Interim Emissions

Source: Adapted from (EPA, 1997a) and (EPA, 2004a), Section 93.109(b), "Table 1 - Conformity Criteria".

implementation of TCMs, as well as demonstrate that the plan and/or program is not interfering with this implementation. TCM documentation will be included in Chapter Five of each respective conformity analysis document.

4) *Consultation* — Section 93.105 requires that the conformity determination be made in accordance with the consultation procedures outlined in the federal regulations. These include:

   - MAG is required to provide reasonable opportunity for consultation with State air agencies, local air quality and transportation agencies, the USDOT and EPA (Section 93.105(a)(1)).

   - MAG is required to establish a proactive public involvement process which provides opportunity for public review and comment prior to taking formal action on a conformity determination (Section 93.105(e)).

   Under the interagency consultation procedures, the RTP is prepared by MAG staff with guidance from the MAG Transportation Policy Committee, the MAG Management Committee, and the MAG Regional Council. Copies of the final Draft are provided to MAG member agencies and others, including the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), EPA, ADEQ, Arizona Department of Transportation (ADOT), Regional Public Transportation Authority (RPTA), Maricopa County Environmental Services Department (MCESD), Pinal County Air Quality Control District (PCAQDC), and Central Arizona Association of Governments (CAAG). The RTP is required to be publicly available and an opportunity for public review and comment is provided.

   The TIP is prepared by MAG staff with the assistance of the MAG modal committees, Transportation Review Committee, and Transportation Policy Committee. Copies of the Draft TIP are provided to MAG member agencies and others, including FHWA, FTA, EPA, ADEQ, ADOT, RPTA, MCESD, PCAQCD, and CAAG for review. As with the RTP, the TIP is required to be publicly available and an opportunity for public review and comment is provided. The MAG consultation process for the conformity analysis includes a 30-day comment period followed by a public hearing that is conducted jointly for the TIP and RTP.

AIR QUALITY DESIGNATIONS

Portions of Maricopa County are currently designated as nonattainment for the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), eight-hour and one-hour ozone, and particulate matter less than or equal to ten microns in diameter (PM-10). Air quality plans have been prepared to address carbon monoxide, one-hour ozone, and PM-10:

- The Revised MAG 1999 Serious Area Carbon Monoxide Plan, reflecting the repeal of the remote sensing program by the Arizona Legislature in 2000, was submitted to EPA in March 2001;

- The Carbon Monoxide Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area was submitted to EPA in June 2003;

- The EPA approved and promulgated a Revised 1998 15 Percent Rate of Progress Plan for Ozone (Revised ROP FIP) for the Maricopa County nonattainment area, effective August 5, 1999;

- The Serious Area Ozone State Implementation Plan for Maricopa County was prepared by ADEQ and submitted to EPA in December 2000 to meet the Serious Area requirements. No budget is contained in the Serious Area Ozone Plan;

- The One-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area was submitted to EPA in May 2004; and

- The Revised MAG 1999 Serious Area Particulate Plan for PM-10 was submitted to EPA in February 2000 and approved by EPA on July 25, 2002.

The boundaries of the nonattainment areas are identified below, followed by a summary of the attainment status for each pollutant for the Maricopa County region.

Nonattainment Boundaries

Nonattainment areas in Maricopa County are shown in Figure A-1. The carbon monoxide and one-hour ozone nonattainment areas share a common boundary, encompassing 1,962 square miles (approximately 22 percent) of the county. These boundaries were originally specified in 1974.

Following promulgation of the PM-10 standard in 1987, EPA identified a larger PM-10 nonattainment area in 1990. The PM-10 nonattainment area encompasses 2,916 square miles, consisting of a 48 by 60 mile rectangular grid encompassing eastern Maricopa County, plus a six by six mile section that includes a portion of the City of Apache Junction in Pinal County.

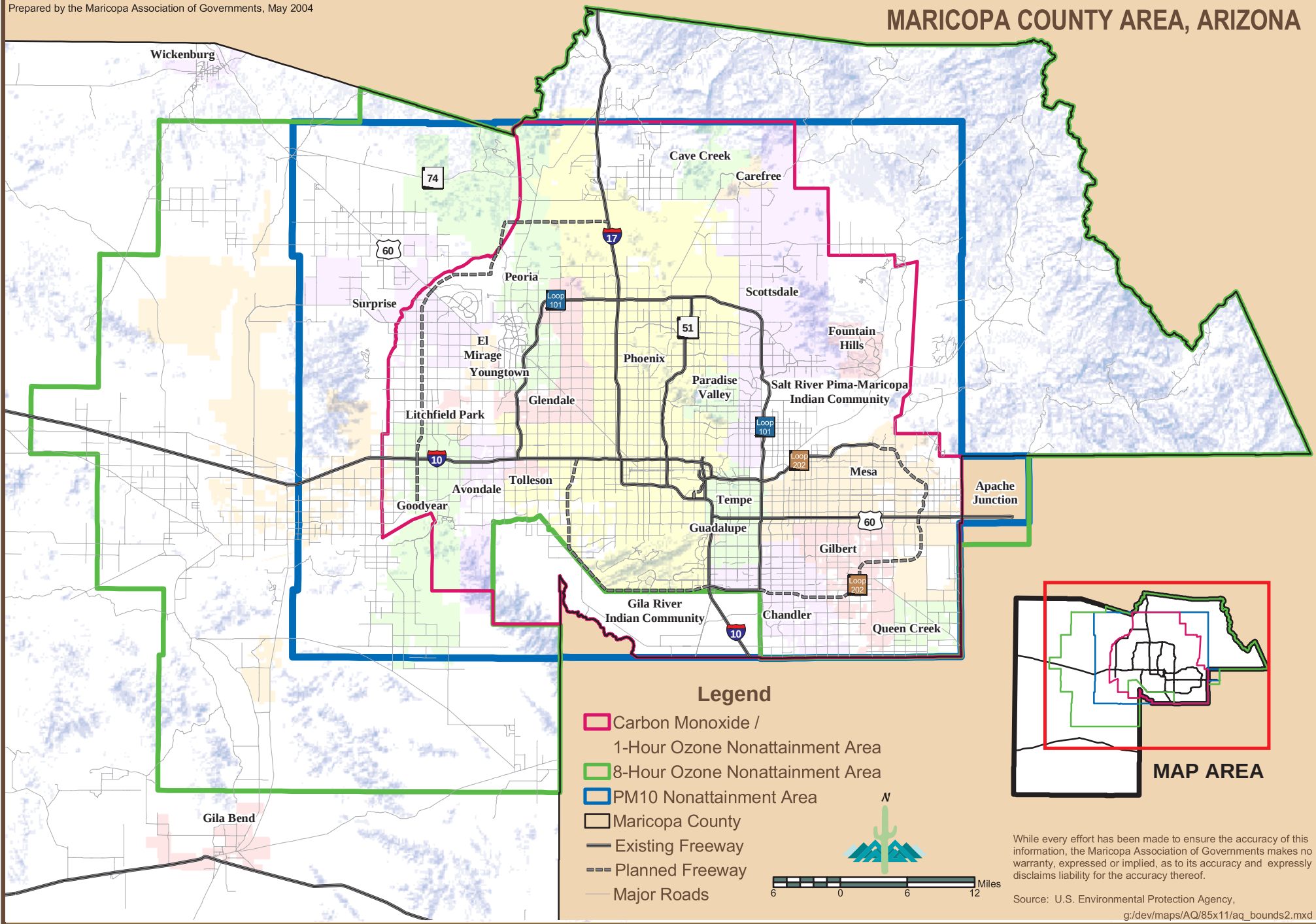
On April 15, 2004, EPA designated a new eight-hour ozone nonattainment area located mainly in Maricopa County and Apache Junction in Pinal County. On April 30, 2004, EPA published the air quality designations and classifications for the eight-hour ozone standard that includes T1N, R8E and sections 1 through 12 of T1S, R8E in Pinal County (EPA, 2004b). As shown in Figure A-1, the eight-hour boundary is larger than the one-hour ozone nonattainment area, but excludes the Gila River Indian Community. The eight-hour ozone nonattainment area covers approximately 4,880 square miles.

MARICOPA ASSOCIATION of GOVERNMENTS

Prepared by the Maricopa Association of Governments, May 2004

Figure A-1

AIR QUALITY NONATTAINMENT AREAS FOR THE MARICOPA COUNTY AREA, ARIZONA



While every effort has been made to ensure the accuracy of this information, the Maricopa Association of Governments makes no warranty, expressed or implied, as to its accuracy and expressly disclaims liability for the accuracy thereof.

Source: U.S. Environmental Protection Agency,

g:/dev/maps/AQ/85x11/aq_bounds2.mxd

Attainment Status

Following the requirements of the 1990 Clean Air Act Amendments, EPA initially identified the MAG region as a "Moderate" nonattainment area for the eight-hour CO standard, with a design value of 12.6 parts per million (ppm), exceeding the current NAAQS of 9.0 ppm. The standard was not achieved by the Clean Air Act deadline of December 31, 1995. The area was reclassified to "Serious" by operation of law in July 1996, with an effective date of August 28, 1996 (EPA, 1996b). The new carbon monoxide attainment date was December 31, 2000. It is important to note that there have been no violations of the carbon monoxide air quality standard in the past eight calendar years (1997 through 2004). The State, in a July 23, 1999 letter, requested a carbon monoxide attainment determination from the EPA. In June 2003, the MAG Carbon Monoxide Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area was submitted to EPA. This document demonstrates that all Clean Air Act requirements have been met and requests that EPA redesignate the area to attainment for carbon monoxide. On September 22, 2003, EPA published a final attainment determination for the carbon monoxide standard (EPA, 2003). On January 5, 2005, EPA signed the notice approving the redesignation of Maricopa County to an attainment area for carbon monoxide.

Under the 1990 Clean Air Act Amendments, the Maricopa County nonattainment area was classified as "Moderate" for the one-hour ozone standard. The standard was not achieved by the deadline of November 19, 1996. On November 6, 1997, EPA reclassified the area to "Serious" for ozone (EPA, 1997b), effective February 13, 1998 (EPA, 1998). The new ozone attainment date was November 19, 1999. It is important to note that there have been no violations of the one-hour ozone air quality standard in the past eight calendar years (1997 through 2004). The State, in a February 21, 2000 letter, requested an ozone attainment determination. On May 30, 2001, the Environmental Protection Agency published a final attainment determination for the one-hour ozone standard (EPA, 2001a). The MAG One-hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area was submitted to EPA in May 2004. The Plan demonstrates that all Clean Air Act requirements have been met and requests that EPA redesignate the area to attainment for one-hour ozone. EPA has indicated that the one-hour ozone nonattainment area may be redesignated to attainment by June 15, 2005. It is anticipated that the one-hour ozone standard will be revoked on June 15, 2005.

Under Section 107(d)(4) of the 1990 Clean Air Act Amendments, the PM-10 nonattainment area was initially classified as "Moderate," with an attainment deadline of December 31, 1994. The standard was not achieved by this date. EPA reclassified the region to "Serious" in May 1996, with an effective date of June 10, 1996 (EPA, 1996a). The new attainment date for PM-10 is December 31, 2001 for Serious areas; however the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area contains a request to extend the attainment date to December 31, 2006, as allowed in the Clean Air Act Amendments (MAG, 2000a). In the July 25, 2002 *Federal Register*, the Environmental Protection Agency published the final approval of the Revised MAG 1999 Serious Area Particulate Plan for PM-10, including the request to extend the attainment date to December 31, 2006.

On April 30, 2004, EPA published the final rule designating eight-hour ozone nonattainment areas, effective June 15, 2004. The eight-hour ozone nonattainment area in Maricopa and Pinal Counties is classified under Subpart 1, referred to as "Basic" nonattainment, with an attainment date of June 15, 2009. The boundary of the new eight-hour ozone nonattainment area is shown in Figure A-1. On January 5, 2005, EPA published a notice designating the region as an attainment area for PM-2.5, effective April 5, 2005.

CONFORMITY TEST REQUIREMENTS

Specific conformity test requirements established for the MAG nonattainment areas for carbon monoxide, ozone, and PM-10, are summarized below. EPA issued a notice of adequacy for the PM-10 motor vehicle emissions budget on April 21, 2000. In addition, EPA has approved the Revised MAG 1999 Serious Area Particulate Plan for PM-10, including the motor vehicle emissions budget for 2006. The Carbon Monoxide Redesignation Request and Maintenance Plan, submitted to EPA in June 2003, contained a 2006 interim budget and a 2015 conformity budget for carbon monoxide. These CO budgets were found to be adequate by EPA on September 29, 2003. The One-Hour Ozone Redesignation Request and Maintenance Plan, submitted to EPA in May 2004, contained a 2006 interim budget and a 2015 conformity budget for the ozone precursors, VOC and NOx. These budgets were found to be adequate by EPA, effective September 1, 2004. There are no adequate or approved conformity budgets for eight-hour ozone, since no attainment plan has been submitted to EPA. The Plan is due by June 15, 2007. The conformity tests that will be performed as part of the 2005 MAG Conformity Analyses are described below.

Carbon Monoxide

The MAG 1999 Serious Area Carbon Monoxide Plan for the Maricopa County Nonattainment Area was submitted to the EPA in July 1999 (MAG, 1999). The MAG 1999 Serious Area Carbon Monoxide Plan used the required EPA emissions model to assess the emission reduction measures required to demonstrate attainment and established a CO emissions budget of 411.6 metric tons per day for 2000 for the modeled area. The EPA issued a notice of adequacy effective December 14, 1999 in the *Federal Register* finding that the submitted CO motor vehicle emissions budget contained in the MAG 1999 Serious Area Carbon Monoxide Plan for the Maricopa County Nonattainment Area was adequate for transportation conformity purposes (EPA, 1999b).

The Revised MAG 1999 Serious Area Carbon Monoxide Plan for the Maricopa County Nonattainment Area was submitted to the EPA in March 2001 (MAG, 2001a). The Revised Plan reflects the repeal of the Random Onroad Testing Requirements (Remote Sensing Program) from the Vehicle Emissions Inspection Program by the Arizona Legislature in 2000. The Revised Plan used the required EPA emissions model to assess the emission reduction measures required to demonstrate attainment and established a CO emissions budget of 412.2 metric tons per day for 2000 for the modeled area. The EPA issued a notice of adequacy in the *Federal Register* on October 17, 2001, finding that the submitted CO motor vehicle emissions budget contained in the Revised MAG 1999 Serious Area Carbon Monoxide Plan for the Maricopa County Nonattainment

Area was adequate for transportation conformity purposes (EPA, 2001b). The new conformity budget for CO of 412.2 metric tons per day replaced the previous budget of 411.6 metric tons per day.

In June 2003, the Carbon Monoxide Redesignation Request and Maintenance Plan was submitted to EPA (MAG, 2003). The Maintenance Plan used the EPA-approved MOBILE6 emissions model to develop a 2006 interim budget for carbon monoxide of 699.7 metric tons per day and a 2015 maintenance budget of 662.9 metric tons per day. EPA found the 2006 and 2015 budgets to be adequate for conformity purposes, effective October 14, 2003. The 2006 interim budget applies to horizon years from 2006 through 2014 and the 2015 budget, to horizon years after 2014. The regional emissions analysis projected for the "Action" scenario for the TIP and RTP must be less than or equal to these budgets.

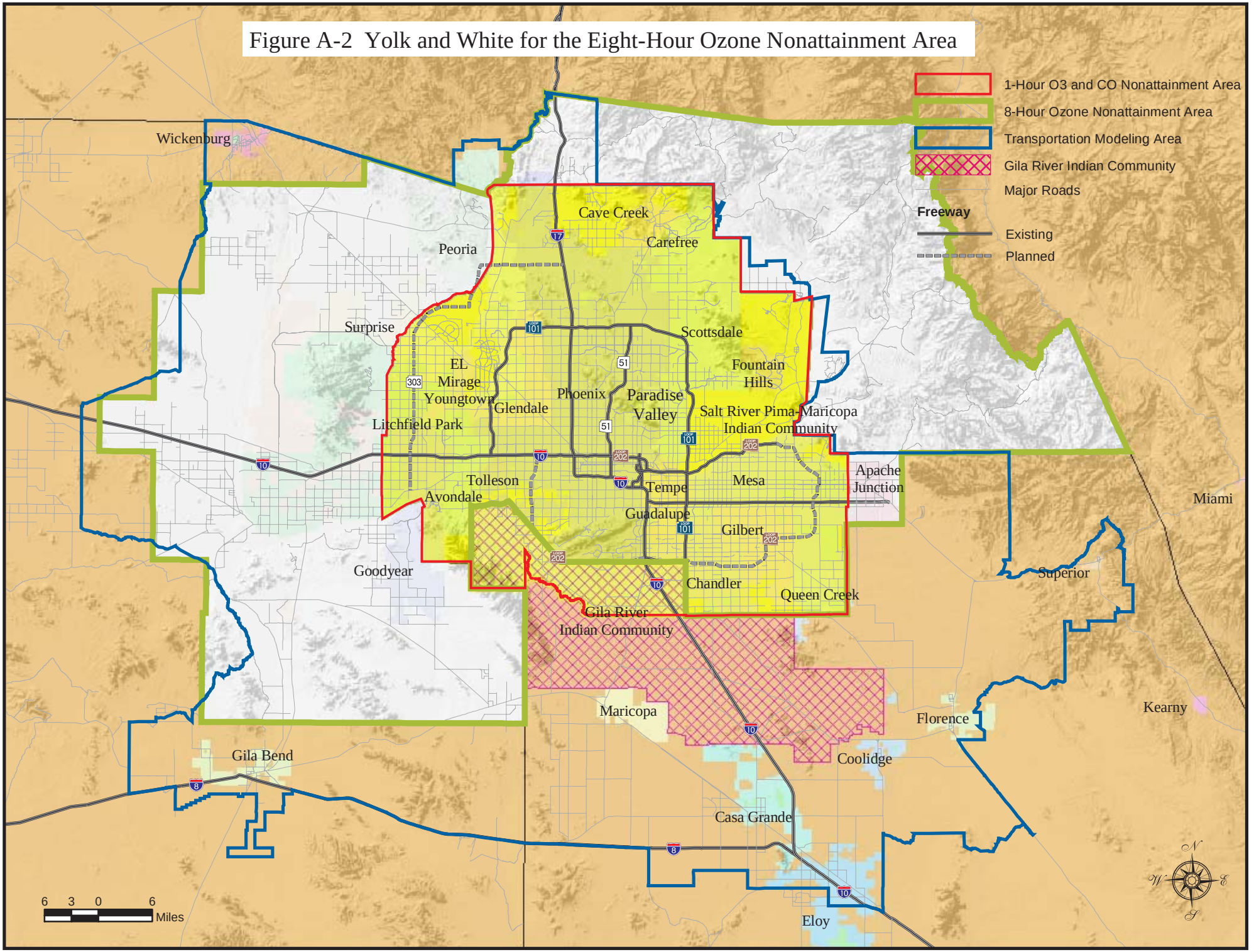
On September 22, 2003, EPA published a final attainment determination for the carbon monoxide standard (EPA, 2003). In addition, on January 5, 2005, EPA signed the notice to approve the Revised MAG 1999 Serious Area Carbon Monoxide Plan and the MAG Carbon Monoxide Redesignation Request and Maintenance Plan as part of the redesignation of Maricopa County to an attainment area for carbon monoxide.

Eight-Hour Ozone

This section discusses the new conformity test requirements for the MAG nonattainment area for eight-hour ozone (EPA, 2004a). Ozone is a secondary pollutant, generated by chemical reactions in the atmosphere involving volatile organic compounds and nitrogen oxides. The MAG One-Hour Ozone Redesignation Request and Maintenance Plan (Ozone Maintenance Plan), March 2004, contains 2006 interim budgets and 2015 maintenance budgets for volatile organic compounds and nitrogen oxides. On August 17, 2004, EPA determined that the budgets in the Ozone Maintenance Plan were adequate for transportation conformity purposes (EPA, 2004d). The EPA adequacy determination for the one-hour ozone budgets became effective on September 1, 2004. The new budgets for volatile organic compounds and nitrogen oxides will be used in conformity analyses for one-hour ozone. Adjusted versions of these budgets will also be used for eight-hour ozone conformity analyses, until eight-hour ozone budgets are found to be adequate or approved in a SIP. The adjustments to the one-hour budgets are discussed in the next section.

Recent amendments to the conformity rule (EPA, 2004a) indicate that the appropriate conformity tests for the new Maricopa County eight-hour ozone nonattainment area, which is larger than the one-hour area, are: (1) the budget test, using adequate or approved VOC and NOx budgets, for the one-hour ozone nonattainment area and (2) the interim emissions test, for either the "egg white" or the entire eight-hour area. The term, "egg white," means the area outside the one-hour ozone nonattainment area (the "egg yolk"), but inside the eight-hour ozone nonattainment area. The "egg yolk" and "egg white" areas of the eight-hour ozone nonattainment area are illustrated in Figure A-2.

Figure A-2 Yolk and White for the Eight-Hour Ozone Nonattainment Area



Eight-Hour Ozone Budget Test

A complicating factor in applying the one-hour ozone budgets is that the eight-hour ozone nonattainment area does not include the Gila River Indian Community (GRIC), whereas the one-hour ozone nonattainment area includes a portion of the GRIC. This situation is called "Scenario Four" in the latest EPA conformity rules (EPA, 2004a). The conformity rule recommends that emissions from the area outside the eight-hour boundary, the shaded portion of the "egg yolk" in Figure A-2, be removed from the one-hour budgets.

Specifically, it is proposed that travel on roads not explicitly coded on the transportation network (called centroid connector or local VMT), that occurs in the "egg yolk" portion of the Gila River Indian Community, be removed. Table A-2 shows the small reductions in the VOC and NOx budgets (0.1 metric ton per day in 2006; less than 0.1 metric ton per day in 2015) that occur as a result of removing local travel on the "egg yolk" portion of the Gila River Indian Community. It is proposed that the adjusted budgets in Table A-2 be used for the eight-hour ozone budget test until new conformity budgets are found to be adequate or approved in an eight-hour ozone State Implementation Plan. For eight-hour conformity analyses, projected local travel in the "egg yolk" portion of the Gila River Indian Community will be removed from the projected "egg yolk" emissions for each analysis year, before comparison with the adjusted budgets.

Eight-Hour Ozone Interim Emissions Test

For areas classified under Subpart 1 that do not have adequate budgets from a submitted eight-hour ozone attainment plan, the conformity rule indicates that the interim emissions test can be either the "Build/No Build" or the "no greater than baseline" tests. EPA guidance indicates that the selected test can be applied to either the entire eight-hour nonattainment area or the "egg white" only. It is proposed that the "no greater than baseline" test be applied to the eight-hour ozone nonattainment area. The 2002 baseline emissions for the eight-hour ozone nonattainment area, represented by the "egg yolk" less GRIC plus the "egg white" in Figure A-2, have been developed using MOBILE6.2, latest planning assumptions, and Geographic Information Systems (GIS).

It should be noted that the transportation modeling area boundary was expanded two years ago to include all areas of the region that are expected to be populated during the next 25 years. The only regionally significant road outside the transportation modeling area boundary is State Route 87 in northeastern Maricopa County. The portion of S.R. 87 outside the modeling area has been added to the highway network, so that emissions on this segment are included in the "egg white." The 2002 emissions on this segment have been estimated using the 2002 modeled traffic volume on S.R. 87, as it leaves the transportation modeling area. Since S.R. 87 emissions have been added to the 2002 baseline, they will also be added to the "egg white" for each analysis year, based on projected traffic volumes for S.R. 87, as it leaves the modeling area.

TABLE A-2
EIGHT-HOUR OZONE CONFORMITY TESTS FOR SCENARIO FOUR

BUDGET TEST

	2006			**2015**		
	Conformity Budget for One-Hour Ozone[1]	Local GRIC Emissions[2]	Adjusted Budget for Eight-Hour Ozone[3]	Conformity Budget for One-Hour Ozone[1]	Local GRIC Emissions[2]	Adjusted Budget for Eight-Hour Ozone[3]
	mt/day			mt/day		
VOC	71.9	0.1	**71.8**	48.7	< 0.1	**48.7**
NOx	104.8	0.1	**104.7**	53.6	<0.1	**53.6**

INTERIM EMISSIONS TEST

	2002 Baseline Emissions in Eight-Hour Ozone Nonattainment Area[4] (mt/day)
VOC	**84.5**
NOx	**137.4**

[1]Budgets in the MAG One-Hour Ozone Maintenance Plan (MAG, 2004a) that have been determined to be adequate (EPA, 2004d), effective September 1, 2004.
[2]Onroad mobile source emissions attributable to local traffic in the "egg yolk" portion of the Gila River Indian Community.
[3]The adjusted one-hour ozone budgets to be used in performing the eight-hour ozone conformity budget test, until budgets for the eight-hour ozone nonattainment area are found to be adequate or approved in a SIP. Emissions from local traffic in the "egg yolk" portion of the Gila River Indian Community have been removed from the budget, because the Gila River Indian Community is not included in the eight-hour ozone nonattainment area boundary.
[4]The 2002 baseline emissions to be used in performing the interim emissions test for the eight-hour ozone nonattainment area. These tests reflect the 2002 transportation model validation run dated February 15, 2005.

Other roads outside of the transportation modeling area carry much lower traffic volumes and these volumes are unlikely to increase significantly during the 22 year horizon of the Regional Transportation Plan. Therefore, only S.R. 87 will be included in the interim emissions test. In the 2005 MAG Conformity Analyses, it is proposed that the eight-hour ozone nonattainment area emissions for each analysis year be compared with the total 2002 baseline emissions shown in Table A-2.

One-Hour Ozone

EPA approved and promulgated a Revised Rate of Progress (ROP) Federal Implementation Plan (FIP) for the Maricopa County nonattainment area, effective August 5, 1999, that established a motor vehicle emission budget for VOCs of 87.1 metric tons for an average summer (ozone) season day (EPA, 1999a). A Serious Area Ozone State Implementation Plan for Maricopa County, submitted to EPA in December 2000, contained no air quality modeling or motor vehicle emissions budget (ADEQ, 2000). Therefore, this Serious Area Ozone Plan had no impact on conformity requirements, processes, or tests, as indicated by EPA in the May 30, 2001 final ruling notice.

On May 30, 2001, EPA published a final rulemaking notice determining that the Phoenix metropolitan serious ozone nonattainment area had attained the one-hour ozone air quality standard by the Clean Air Act deadline of November 15, 1999. In the notice, EPA also determined that the Clean Air Act requirements for reasonable further progress, attainment determination, and contingency measures were not applicable as long as the Phoenix area continued to attain the one-hour ozone air quality standard.

The One-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area was submitted to EPA in May 2004 (MAG, 2004a). The Maintenance Plan used the EPA-approved MOBILE6 emissions model to develop a 2006 interim budget for volatile organic compounds of 71.9 metric tons per day and a 2015 maintenance budget for VOC of 48.7 metric tons per day. The Maintenance Plan also developed a 2006 interim budget for nitrogen oxides of 104.8 metric tons per day and a 2015 maintenance budget for NOx of 53.6 metric tons per day. EPA found these 2006 and 2015 budgets to be adequate for conformity purposes, effective September 1, 2004. The 2006 interim budget applies to horizon years from 2006 through 2014 and the 2015 budget, to horizon years after 2014. The regional emissions analysis projected for the "Action" scenario for the TIP and RTP must be less than or equal to these budgets.

It is anticipated that the one-hour ozone standard will be revoked on June 15, 2005. Since both conformity analyses may commence before this date, the one-hour ozone conformity tests will be applied. However, after June 15, 2005, conformity for one-hour ozone will not be required.

PM-10

The Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area was submitted to the EPA in February 2000 (MAG, 2000a). The Clean Air Act

attainment date is December 31, 2001 for Serious PM-10 Areas; however, the Revised MAG 1999 Serious Area Particulate Plan for PM-10 contains a request to extend the attainment date to December 31, 2006, as allowed in the Clean Air Act Amendments. The Revised MAG 1999 Serious Area Particulate Plan for PM-10 used the required EPA emission model to assess the emission reduction measures required to demonstrate attainment and established a PM-10 emissions budget of 59.7 metric tons per day applicable for both the annual average and 24-hour PM-10 standards in 2006 for the modeled area. The EPA issued a notice of adequacy, effective April 21, 2000 in the *Federal Register* finding that the submitted PM-10 motor vehicle emissions budget contained in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 was adequate for transportation conformity purposes (EPA, 2000a). The regional emissions projected for the "Action" scenarios for the TIP and RTP must be less than or equal to the budget established by this Plan. In the July 25, 2002 Federal Register, EPA published the final approval of the Serious Area PM-10 Plan, including the extension of the attainment date until 2006 and the 2006 conformity budget.

Section 93.122(d)(2) of the federal conformity rule requires that PM-10 from construction-related fugitive dust be included in the regional PM-10 emissions analysis, if it is identified as a contributor to the nonattainment problem in a PM-10 implementation plan. The motor vehicle emissions budget established in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 includes regional reentrained dust from travel on paved roads, vehicular exhaust, travel on unpaved roads, and road construction. Therefore, emissions from road construction are included as part of the PM-10 estimates developed for this conformity analysis.

ANALYSIS YEARS

In the 2005 MAG Conformity Analyses, onroad mobile source emissions of carbon monoxide, ozone precursors (volatile organic compounds and nitrogen oxides) for both the one-hour and eight-hour standards, and PM-10 will be estimated for the analysis years: 2006, 2009, 2015, 2016, and 2026. In selecting analysis years, the conformity rule requires that: (1) if the attainment year is in the time span of the transportation plan, it must be modeled; (2) the last year forecast in the transportation plan must be an analysis year; and (3) analysis years may not be more than ten years apart.

The years 2006 and 2015 will be modeled because conformity budgets have been found adequate for these years in the MAG Carbon Monoxide Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area (MAG, 2003) and the MAG One-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area (MAG, 2004a). The year 2009 will be modeled since it is the attainment year for the eight-hour ozone standard. The year 2026 will be modeled because it is the last year of the forecast period for the Regional Transportation Plan. The year 2016 is an intermediate year that meets the federal conformity rule requirement that horizon years be no more than ten years apart.

II. LATEST PLANNING ASSUMPTIONS

The Clean Air Act states that "the determination of conformity shall be based on the most recent estimates of emissions, and such estimates shall be determined from the most recent population, employment, travel, and congestion estimates as determined by the MPO or other agency authorized to make such estimates." On January 18, 2001, the USDOT issued guidance developed jointly with EPA to provide additional clarification concerning the use of latest planning assumptions in conformity determinations (USDOT, 2001).

Key elements of this guidance are identified below:

- Areas are strongly encouraged to review and strive towards regular five-year updates of planning assumptions, especially population, employment and vehicle registration assumptions.

- The latest planning assumptions must be derived from the population, employment, travel and congestion estimates that have been most recently developed by the MPO (or other agency authorized to make such estimates) and approved by the MPO.

- Conformity determinations that are based on information that is older than five years should include written justification for not using more recent information. For areas where updates are appropriate, the conformity determination should include an anticipated schedule for updating assumptions.

The latest planning assumptions proposed for use in the 2005 MAG Conformity Analyses are summarized in Table A-3. The methodology and scheduled updates for the planning assumptions are discussed below.

Recent amendments to the conformity rule (EPA, 2004a) indicate that "the conformity determination must satisfy the requirements...using the planning assumptions available at the time the conformity analysis begins as determined through the interagency consultation process." It is proposed that the "time that the conformity analysis begins" will be the day that the first traffic assignment (i.e. 2006, 2009, 2015, 2016, or 2026) for the 2005 MAG Conformity Analyses has been submitted for computer processing. Each network-based traffic assignment typically takes about 48 hours of computer time to complete one forecast. The latest planning assumptions to be used in these traffic assignments and the emissions models are described in Table A-3.

POPULATION AND EMPLOYMENT

In accordance with the Arizona Governor's Executive Order 95-2, the population projections used for all State agency planning purposes are updated by the Arizona Department of Economic Security

TABLE A-3
LATEST PLANNING ASSUMPTIONS FOR MAG CONFORMITY DETERMINATIONS

Assumption	Source	MAG Models	Next Scheduled Update
Population	Under Governor's Executive Order 95-2, official County projections are updated every 5 years by the Arizona Department of Economic Security (DES) after a census; projections must be used by all agencies for planning purposes; projections from DES have not been prepared; MAG used ASU projections with 2000 Census data and state-of-the-art land use models to develop interim socioeconomic projections; these were accepted by the MAG Regional Council in June 2003.	DRAM/ EMPAL; SAM-IM	Official socioeconomic projections based on DES county projections may be approved by the MAG Regional Council during the second half of 2005.
Employment	County control totals are based on the official DES population projections; since these are not ready (see above), MAG used ASU projections with 2000 Employment Survey and state-of-the-art land use models to develop interim socioeconomic projections; these were accepted by the MAG Regional Council in June 2003.	DRAM/ EMPAL; SAM-IM	Official socioeconomic projections based on DES county projections may be approved by the MAG Regional Council during the second half of 2005.
Traffic Counts	Transportation models were validated in 2004 using approximately 3,000 traffic counts collected in 2002.	EMME/2	Traffic counts are updated every three to four years, if funds are available.
Vehicle Miles of Travel	Transportation models were re-calibrated in 2004 based on a 2001 home interview survey and a 2001 on-board bus survey.	EMME/2	The transportation models are improved continuously, as funds are available.
Speeds	Transportation models were validated using survey data on peak and off-peak highway speeds collected in 2002-2003.	EMME/2	A speed study will be conducted every five years, if adequate funds are available.
Vehicle Registrations	July, 2002 and January, 2003 vehicle registrations were provided by ADOT.	MOBILE6	When newer data are available from ADOT in MOBILE6 model format.
Implementation Measures	Latest implementation status of commitments in prior SIPs.	N/A	Updated for every conformity analysis.

(DES) every five years after a decennial or mid-decennial census. Unfortunately, the DES has not yet prepared the official county projections. In the meantime, MAG has prepared interim projections by traffic analysis zone (TAZ), based on Maricopa County projections developed by the Arizona State University Center for Business Research (ASU), and data from the 2000 U.S. Census, the 2000 MAG Employment Survey, and the MAG GIS and Database Enhancement Study. MAG allocated the ASU projections for Maricopa County to TAZs using the DRAM/EMPAL and Subarea Allocation Model-Information Manager (SAM-IM) land use models. These interim socioeconomic population and employment projections were accepted by the MAG Regional Council in June 2003.

The travel and congestion estimates for the 2006, 2009, 2015, 2016, and 2026 "Action" scenarios in the 2005 MAG Conformity Analyses will be based on these latest population and employment projections accepted by the MAG Regional Council. MAG will prepare final population and employment projections by TAZ, when DES releases the official county projections, as required by Executive Order 95-2. It is expected that these final TAZ projections will be available during the second half of 2005.

Methodology

DES prepares the official Arizona population projections by county, using census data. However, since the DES projections were not available, MAG used ASU projections for Maricopa County, based on the 2000 Census. These population and employment projections for Maricopa County were "stepped down" to smaller geographic areas by MAG using the latest available data and state-of-the-art land use models. The nationally-recognized DRAM/EMPAL model was used to allocate county projections of households and employment to 147 regional analysis zones (RAZs) based upon the pre-existing location of these activities, land consumption, and transportation system accessibility. The allocation of population and employment from RAZs to one-acre grids was accomplished with a GIS-based model called SAM-IM which assesses the suitability of each grid for development based on measures such as adjacent land use, highway access, and proximity to other development.

Population and employment at the one-acre level is aggregated to TAZs using SAM-IM. These interim socioeconomic projections were accepted by the MAG Regional Council in June 2003.

Next Scheduled Update

The next update of the TAZ population and employment projections will be based on the official DES county-level projections, required by Executive Order 95-2. Unfortunately, the DES has not yet prepared the official county projections. When the DES county-level projections are available, it is anticipated that MAG will allocate the Maricopa County projections to TAZs using the DRAM/EMPAL and SAM-IM land use models. This MAG modeling will take approximately six months to complete and the final TAZ projections may be available during the second half of 2005.

TRAFFIC COUNTS

Enhancements to the mode choice component of the MAG transportation models have recently been completed and the transportation modeling domain has been expanded from 1,541 TAZs to 1,995 TAZs. The new models were validated in 2005, using approximately 3,000 traffic counts collected in 2002. The validation demonstrated a good statistical fit between actual and estimated daily traffic volumes, as measured by a percent root mean square error of 39.6 percent. The transportation conformity rule Section 93.122(b)(1)(i) specifies that network-based transportation models need to be validated against observed counts for a base year that is not more than ten years prior to the date of the conformity determination.

Methodology

MAG uses EMME/2 software to perform traffic and transit assignments. The MAG transportation models follow a traditional four-step process: trip generation, trip distribution, mode choice, and traffic/transit assignment. Trip generation determines the number of person trips produced and attracted by traffic analysis zone. Trip distribution links the productions and attractions by TAZ. The recently updated mode choice model determines the number of person trips allocated to each of the following modes: auto drivers, two person carpools, three or more person carpools, express bus, local bus, and rail. The mode choice model is sensitive to highway and transit travel times, as well as pricing variables such as automobile operating costs, parking costs, and transit fares. Highway and transit route choice is determined in the assignment step, based on operating costs, travel times, and distances. Capacity-restrained traffic assignments are performed for the AM peak period, midday, the PM peak period, and nighttime. A feedback loop between traffic assignment and trip distribution is utilized to achieve near-equilibrium highway speeds. A peak spreading model is applied to derive the AM and PM peak hour traffic volumes. The transportation models are documented in "Draft MAG Travel Demand Model Documentation" (MAG, 2005).

The MAG FY 2002 Unified Planning Work Program provided $80,000 for a comprehensive Traffic Count Study. The traffic count study was conducted during 2002. The data has subsequently been used to validate the MAG transportation models.

Next Scheduled Update

MAG intends to continue to conduct comprehensive traffic counts every three to four years, if funds are available.

VEHICLE MILES OF TRAVEL

The MAG transportation models were re-calibrated in 2004 based on a 2001 household travel survey and a 2001 on-board bus survey. The MAG FY 2001 Unified Planning Work Program programmed $500,000 to conduct an activity diary-based travel survey of 4,000 households. The survey instruments were distributed to randomly-selected households during 2001. This survey data has

been used to recalibrate the MAG transportation models. The models, described above, simulate peak and daily traffic volumes on more than 30,000 highway links, as well as transit trips on bus and light rail routes. Transportation model estimates of vehicle miles of travel (VMT) are validated using actual traffic counts. Most recently, the MAG transportation models have been validated against more than 3,000 traffic counts collected in 2002. Vehicle miles of travel by link, output by the highway assignment process, are input to the emissions models used in conformity. The methodology for reconciling modeled VMTs with the Highway Performance Monitoring System (HPMS) is described below.

Methodology for Reconciling Transportation Model VMT with HPMS

For nonattainment areas classified as Serious or above, with an urbanized area population exceeding 200,000, the transportation conformity regulations in Section 93.122(b)(3), as amended August 15, 1997, state that:

> Highway Performance Monitoring System estimates of vehicle miles traveled shall be considered the primary measure of VMT within the portion of the nonattainment or maintenance area and for the functional classes of roadways included in HPMS, for urban areas which are sampled on a separate urban area basis. For areas with network-based travel models, a factor (or factors) may be developed to reconcile and calibrate the network-based travel model estimates of VMT in the base year of its validation to the HPMS estimates for the same period. These factors may then be applied to model estimates of future VMT. In this factoring process, consideration will be given to differences between HPMS and network-based travel models, such as differences in the facility coverage of the HPMS and the modeling network description. (EPA, 1997a)

In conformity analyses prior to 2002, transportation model VMTs were not reconciled with HPMS, because the former closely approximated the latter. This close approximation is evident in the annual VMT tracking reports submitted to EPA to satisfy a MAG commitment in the Revised MAG 1999 Serious Area Carbon Monoxide Plan. The final vehicle miles of travel tracking report was submitted to EPA in 2001 (MAG, 2001b). To ensure that the output of the updated MAG transportation models continues to track HPMS vehicle miles of travel and comply with the conformity rule, MAG develops factors to reconcile estimates of VMT from the transportation models with HPMS. The first set of reconciliation factors was developed for the 1998 transportation model validation year and was used in conformity analyses conducted in 2002 through 2004. MAG has recently revalidated the transportation models, and in accordance with conformity regulations, has developed a new set of HPMS reconciliation factors.

The new reconciliation factors were developed by comparing 2002 HPMS VMT with 2002 VMT from the transportation models that has been validated against more than 3,000 traffic counts collected in 2002. The 2002 HPMS data was submitted to the Federal Highway Administration by the Arizona Department of Transportation (ADOT) in October, 2003. The Appendix provides the

ADOT HPMS summary tables for urbanized and donut areas in 2002. Together, the Phoenix urbanized and donut areas represent the PM-10 nonattainment area in Maricopa and Pinal Counties. The 2002 HPMS VMT in the Appendix and 2002 VMT from the validated transportation models for the PM-10 nonattainment area are compared in Table A-4.

After transportation model VMT is converted from average weekday traffic (AWDT) to annual average daily traffic (AADT), the difference between total HPMS and modeled VMT for the PM-10 nonattainment area is less than one percent. The facility types used in the transportation models are not always consistent with the functional classifications used in HPMS. For example, some facilities functionally classified as collectors by HPMS are called arterials in the transportation models. Because of these inconsistencies, non-freeway VMTs need to be summed in order to compare model output with HPMS. As Table A-4 indicates, modeled non-freeway VMT is 0.4 percent higher than HPMS non-freeway VMT, while freeway VMT is 3.4 percent less than HPMS freeway VMT.

Since the difference between modeled and HPMS VMTs for the PM-10 nonattaiment area is less than one percent, HPMS factors are only needed to shift a small portion of the modeled VMT from non-freeways onto freeways. To accomplish this, freeway VMT output by the transportation models will be increased by 3.5 percent and non-freeway VMT will be decreased by 0.4 percent in the PM-10 nonattainment area. A comparison of HPMS and modeled VMT will be conducted when the transportation models are revalidated again. Until the next validation, these HPMS reconciliation factors will be applied to modeled freeway and non-freeway VMT used in air quality planning and conformity analyses.

As indicated above, Section 93.122(b)(3) of the conformity rule requires only those nonattainment areas classified as Serious (and above) to reconcile modeled VMTs with HPMS. The PM-10 nonattainment area has been used to reconcile with HPMS VMTs, because this is the largest Serious nonattainment area in the region. The new eight-hour ozone nonattainment area boundary is larger than the PM-10 area, but the eight-hour ozone area is classified as Basic, not Serious. A comparison of 2002 VMT for the eight-hour ozone and PM-10 nonattainment areas reveals that vehicle miles of travel in the PM-10 nonattainment area are 98 percent of the VMT in the eight-hour ozone nonattainment area. Therefore, expansion to the new eight-hour ozone boundaries would have little impact on the HPMS reconciliation factors. It is important to note that the Apache Junction portion of Pinal County is included in the PM-10 nonattainment area and, as a result, VMT estimates for this area have been addressed in the HPMS reconciliation process.

Next Scheduled Update

The FY 2005 MAG Urban Planning Work Program has programmed $70,000 for consultant assistance in improving and updating the EMME/2 transportation models.

TABLE A-4
COMPARISON OF TRANSPORTATION MODEL AND HPMS VMT FOR 2002

2002 HPMS VMT
(in thousands per annual average day)

	Freeways	Other Principal + Minor Arterials	Collectors	Locals	Total
Urbanized Area	22,528	17,890+10,309= 28,199	5,636	6,975	63,338
Donut Area	1,830	972+965 = 1,937	2,384	543	6,694
Total PM-10 Nonattainment Area	24,358	18,862+11,274 = 30,136	8,020	7,518	70,032

Arterials + Collectors + Locals
45,674

2002 TRANSPORTATION MODEL VMT
(in thousands, adjusted from average weekday to annual average day)

	Freeways	Arterials	Collectors	Locals	Total
Total PM-10 Nonattainment Area[1]	23,538	37,115	2,291	6,470	69,414

Arterials + Collectors + Locals
45,876

2002 TRANSPORTATION MODEL VS. HPMS VMT
(Percent Difference)

	Freeways	Arterials + Collectors + Locals	Total
Total PM-10 Nonattainment Area	-3.4%	+0.4%	-0.9%

HPMS FACTORS

	Freeways[2]	Non-Freeways[3]
Total PM-10 Nonattainment Area[1]	1.035	.996

[1]Derived using Geographic Information Systems (GIS)
[2]Facility Types 0, 1, 7, 8, 9
[3]Facility Types 2-6

SPEEDS

Speeds obtained from the capacity-restrained traffic assignments are "fed-back" in the travel demand modeling chain. The trip distribution, mode choice, and traffic assignment steps of the chain are executed until AM peak period trip tables and link volumes are in equilibrium (root mean square error of five percent or less). A minimum of five iterations is required to achieve equilibrium. In addition to vehicle miles of travel, the MAG transportation models calculate system performance measures such as vehicle hours of travel and volume to capacity ratios. AM peak, midday, PM peak, nighttime, and daily speeds by highway link are derived from the volume to capacity ratios estimated by the MAG transportation models.

Periodically, MAG conducts speed studies to compare model-estimated speeds with empirical data. The MAG FY 2002 Unified Planning Work Program programmed $300,000 for a MAG Travel Speed Study. This study was conducted in 2002-2003 (MAG, 2004c). About 6,500 speed observations were collected during this study. The new speeds were used to validate speeds input to and output by the MAG transportation models.

Methodology

The average observed speeds for the PM peak period from the 2002-2003 speed study are summarized in Table A-5. A comparison of 2002 transportation model-estimated and observed vehicle hours of travel (VHT) for the PM peak period (3-6 PM) is provided in Table A-6. The percent root mean square error of estimated versus actual PM peak speeds is 29.3 percent.

Table A-6 indicates that the total transportation model-estimated vehicle hours of travel are 2.3 percent below the vehicle hours of travel observed in the 2002-2003 speed study. Since average speed is derived by dividing vehicle miles of travel by vehicle hours of travel, the values in Table A-6 are inversely-proportional to average PM peak speeds. In other words, for the transportation modeling area, model-estimated speeds are about two percent higher than the observed speeds. However, for some facility and area types (i.e., collectors in mixed urban areas) model-estimated speeds are lower than the observed. It should be noted that there is considerable variation in estimated versus observed speeds when examined on a link-by-link basis.

Next Scheduled Update

MAG intends to conduct a speed study every five years, if funds are available.

VEHICLE REGISTRATIONS

Vehicle registrations for July 2002 and January 2003 are the latest provided to MAG by the Arizona Department of Transportation, Motor Vehicle Division. In the 2005 MAG Conformity Analyses, the July 2002 registrations will be used to estimate VOC, NOx, and PM-10 emissions, while the January 2003 registrations will be used to estimate wintertime CO emissions. The vehicle

TABLE A-5
AVERAGE OBSERVED SPEEDS (MPH)
2002 PM PEAK PERIOD

	Area Type[1]					
Facility Type	1	2	3	4	5	All
Freeway	46.6	52.1	62.2	65.3	53.3	57.2
Expressway	----	35.4	55.1	46.9	54.5	50.2
Collector	----	32.1	23.2	29.0	----	25.8
6-Leg Arterial	19.8	25.2	27.6	31.3	----	25.6
Arterial	25.4	30.2	32.9	38.5	42.2	32.8
HOV Lanes	58.5	58.3	65.8	----	----	59.7
Total	29.5	35.2	37.4	42.7	46.3	37.4

TABLE A-6
RATIO OF ESTIMATED/OBSERVED VEHICLE HOURS OF TRAVEL[2]
2002 PM PEAK PERIOD

	Area Type[1]					
Facility Type	1	2	3	4	5	All
Freeway	.909	1.094	1.097	.981	.902	1.037
Expressway	----	1.164	1.328	.980	1.026	1.015
Collector	----	.917	2.890	1.044	----	2.268
6-Leg Arterial	.793	.967	.893	1.440	----	.949
Arterial	.825	.948	.955	1.048	1.143	.971
HOV Lanes	.886	.830	.976	----	----	.863
Total	.831	.957	.970	1.039	1.083	.977

[1]Area Type 1 = CBD, Area Type 2 = Outlying, Area Type 3 = Mixed Urban, Area Type 4 = Suburban, Area Type 5 = Rural
[2]Average Speed = Vehicle Miles of Travel/Vehicle Hours of Travel

registration distributions have been converted to MOBILE6 format. MAG will use newer vehicle registration data when provided by ADOT in the format required by the MOBILE6 emissions model.

IMPLEMENTATION MEASURES

In the 2005 MAG Conformity Analyses, emission reduction credit will be assumed for the committed control measures in the applicable air quality plans, including the measures shown in Table A-7. The emission reductions assumed for these committed measures will reflect the latest implementation status of these measures. In these conformity analyses, MAG will reflect the latest implementation status of all measures for which emissions reduction credits are assumed. As required by the conformity rule, the applicable transportation control measures (TCMs) will be fully documented in Chapter Five of the respective conformity analysis documents.

Emission reduction credit may also be applied for Congestion Mitigation and Air Quality Improvement (CMAQ) projects in the Transportation Improvement Programs and prior TIPs, if credit for these measures was not quantified in the applicable air quality plans. The equations, methods, and assumptions to be used in calculating emission reductions attributable to CMAQ projects are described in Methodologies for Evaluating Congestion Mitigation and Air Quality Improvement Funds (MAG, 2004b). In addition, emission reduction credit for the strengthening of existing control measures or implementation of new control measures, as identified in the TIP and RTP, will be incorporated into the analysis, where appropriate.

III. TRANSPORTATION MODELING

MAG regional transportation modeling is performed using EMME/2 software for both highway and transit network assignments. The transportation models forecast AM peak period, midday, PM peak period, and nighttime vehicle traffic, as well as daily transit ridership, for the MAG transportation modeling area. The transportation modeling area currently contains 1,995 traffic analysis zones and covers an area of approximately 6,500 square miles. The transportation modeling boundary is illustrated in Figure A-2. The part of the MAG transportation modeling area located in Pinal County is considerably larger than the eight-hour ozone nonattainment area in Pinal County.

The latest calibration of the transportation models was completed in 2004, using data from the 2001 household travel survey and the 2001 on-board bus survey. The latest validation of the transportation models was completed in 2004 using 2002 traffic counts.

The MAG transportation models exhibit the following characteristics, which are consistent with requirements identified in the federal transportation conformity rule (Section 93.122(b)):

- The 2002 traffic volumes simulated by the MAG transportation models have been validated against approximately 3,000 traffic counts. This validation demonstrated a

TABLE A-7
SIP MEASURES TO BE ASSUMED IN THE 2005 CONFORMITY ANALYSES

SIP Measure	Reference	Measure Description	Pollutant(s)
1	CO Maintenance Plan[1] Ozone Maintenance Plan[2]	Phased-In I/M Cutpoints	CO, VOC, NOx, PM-10
3	CO Maintenance Plan[1] Ozone Maintenance Plan[2]	One-Time I/M Waiver	CO, VOC, NOx, PM-10
9	CO Maintenance Plan[1] Ozone Maintenance Plan[2]	Tougher Registration Enforcement	CO, VOC, NOx, PM-10
14 14	CO Maintenance Plan[1] Ozone Maintenance Plan[2] Serious Area PM-10 Plan[3]	Clean Burning Gasoline	CO, VOC, NOx, PM-10
25 26	CO Maintenance Plan[1] Ozone Maintenance Plan[2] Serious Area PM-10 Plan[3]	Intelligent Transportation Systems	CO, VOC, NOx, PM-10
34	CO Maintenance Plan[1] Ozone Maintenance Plan[2]	Area A Expansion (SB 1427)	CO, VOC, NOx, PM-10
41 58	CO Maintenance Plan[1] Ozone Maintenance Plan[2] Serious Area PM-10 Plan[3]	Traffic Signal Synchronization	CO, VOC, NOx, PM-10
39	Serious Area PM-10 Plan[3]	Strengthening and Better Enforcement of Fugitive Dust Control Rules - Construction	PM-10
40	Serious Area PM-10 Plan[3]	Reduce Particulate Emissions from Unpaved Roads and Alleys	PM-10
50	Serious Area PM-10 Plan[3]	PM-10 Efficient Street Sweepers	PM-10
69	Serious Area PM-10 Plan[3]	Paving, Vegetating, and Chemically Stabilizing Unpaved Access Points onto Paved Roads	PM-10
70	Serious Area PM-10 Plan[3]	Curbing, Paving, or Stabilizing Shoulders on Paved Roads	PM-10

Sources:
[1]*Carbon Monoxide Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area*, May 2003 (MAG, 2003).
[2]*One-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area*, March 2004 (MAG, 2004a).
[3]*Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area,* February 2000 (MAG, 2000a).

good statistical fit between actual and estimated 24-hour 2002 traffic volumes, as measured by a percent root mean square error of 39.6 percent. The MAG transportation models are documented in "Draft MAG Travel Demand Model Documentation" (MAG, 2005).

- The population, households, and employment inputs to the travel demand models are based on the latest interim socioeconomic projections accepted by the MAG Regional Council in June 2003. These projections were prepared using the DRAM/EMPAL land use model and the MAG Subarea Allocation Model-Information Manager (SAM-IM), as well as data from the ASU Center for Business Research, the 2000 Census, and the 2000 MAG Employment Survey for Maricopa County.

- The population and employment projections to be used in the conformity analysis are consistent with the transportation system alternatives considered. In the MAG land use models, transportation system accessibility influences the allocation of population and employment to smaller geographic areas. The DRAM/EMPAL model distributes County-level projections of households and employment to 147 regional analysis zones (RAZs) based upon the pre-existing location of these activities, land use consumption rates, and transportation system accessibility, expressed in terms of PM peak travel times. These congested travel times are derived from an appropriate EMME/2 capacity-restrained traffic assignment for each forecast year. The allocation of population, households and employment from RAZs to one-acre grid cells is accomplished with SAM-IM. SAM-IM uses transportation system accessibility measures, such as proximity to the closest highway, in determining the likelihood that a one-acre grid will develop during a given forecast interval. SAM also aggregates population, households, and employment projections by one-acre grid to the TAZ-level for input to EMME/2. Congested travel times output by the EMME/2 transportation models are "fed-back" into the land use models to ensure that there is consistency between the transportation system assumptions and the land use projections.

- The EMME/2 transportation models perform capacity-restrained traffic assignments. Restrained assignments are produced for the AM peak period, midday, PM peak period, and nighttime, with volumes and congestion estimated for each period. A peak spreading model is used to derive AM and PM peak hour traffic volumes.

- Speeds obtained from the capacity-restrained traffic assignments are "fed-back" in the travel demand modeling chain. The trip distribution, mode choice, and traffic assignment steps of the chain are executed until AM peak period trip tables and link volumes are in equilibrium (root mean square error of five percent or less). A minimum of five iterations are required to achieve equilibrium. The travel impedances used in the mode choice model include travel times and costs associated with each of the following modes: auto-drivers, carpools (2 and 3+ persons), and transit (i.e. express bus, local bus, and rail).

- The travel impedances used in the trip distribution and traffic assignment steps of the MAG travel demand models are a composite function of highway travel times and costs. The MAG nested logit mode choice model is sensitive to highway and transit travel times, as well as pricing variables, such as automobile operating costs, parking costs, and transit fares.

- As a result of the feedback loop in the MAG travel demand modeling process, the final peak and off-peak speeds are sensitive to the capacity-restrained volumes on each highway segment represented in the network. MAG conducted a new speed study in 2002-2003 in order to validate the vehicle hours of travel, speeds, and other performance measures output by the latest transportation models. The transportation models were re-calibrated and validated using this new speed data. Data from this new Travel Speed Study has been used to ensure that the capacity-restrained speeds and delays output by the transportation models are consistent with empirical data. The assigned speeds used in the last iteration of the models are in reasonable agreement with speed data collected in the 2002-2003 MAG Travel Speed Study (MAG, 2004c). Table A-5 provides the observed speeds for the PM peak period. Table A-6 provides a comparison of model-estimated and observed vehicle hours of travel (VHT) for the same period. Overall, the estimated VHT for 2002 is 2.3 percent less than the VHT derived from the 2002-2003 survey data.

- The MAG travel demand models estimate average *weekday* traffic, while the Arizona Highway Performance Monitoring System (HPMS) reports *annual average daily* traffic. In addition, HPMS VMT is reported for the urbanized and donut areas of the PM-10 nonattainment area, which is smaller than the transportation modeling area. In accordance with conformity guidance in Section 93.122(b)(3), MAG has compared transportation model VMT by facility type with HPMS VMT by functional class. For the 3,000 square mile PM-10 nonattainment area, total modeled and HPMS VMTs for 2002, the latest transportation model validation year, differ by less than one percent. The differences between modeled and HPMS VMTs are slightly larger, when viewed from a facility type/functional class perspective. For freeways, modeled VMT is 3.4 percent less than HPMS. For non-freeways, the modeled VMT is 0.4 percent higher than HPMS. These differences are reconciled by applying a 1.035 factor to increase modeled freeway VMT and an offsetting 0.996 factor to decrease modeled non-freeway VMT for the 2005 MAG Conformity Analyses.

SOCIOECONOMIC PROJECTIONS

Section 93.110 of the federal conformity rule requires that the population and employment projections used in the conformity analysis be the most recent estimates that have been officially approved by the Metropolitan Planning Organization (i.e., MAG for this region). The 2005 MAG Conformity Analyses will be based on interim socioeconomic population projections accepted by the MAG Regional Council in June 2003.

In accordance with the Arizona Governor's Executive Order 95-2, the population projections used for all State agency planning purposes are updated by the Arizona Department of Economic Security (DES) every five years after a decennial or mid-decennial census. Unfortunately, the U.S. Census Bureau is only beginning to make available the 2000 in-migration and out-migration data by county, data that are needed by DES which has not yet prepared the official county projections. In the meantime, MAG has prepared interim socioeconomic projections by traffic analysis zone (TAZ), based on Maricopa County projections developed by the Arizona State University Center for Business Research (ASU), as well as data from the 2000 U.S. Census, the 2000 MAG Employment Survey and the MAG GIS and Database Enhancement Study. MAG allocated the ASU projections for Maricopa County to TAZs using the DRAM/EMPAL and Subarea Allocation Model - Information Manager (SAM-IM) land use models. These interim socioeconomic population and employment projections were accepted by the MAG Regional Council in June 2003.

The interim TAZ population, households and employment projections take into account the transportation improvements contained in the conforming TIP (FY 2003-2007) and RTP (2002 Update) in effect at the time the projections were accepted. For the 2005 MAG Conformity Analyses, the interim projections of population, households, and employment by TAZ will be input to the MAG transportation models to estimate auto and transit trips, VMT, and congestion for each "Action" scenario.

When official DES county projections are prepared in accordance with Executive Order 95-2, MAG will use the DRAM/EMPAL and SAM-IM land use models to prepare a final set of TAZ projections, based on the 2000 Census, the 2000 MAG Employment Survey and the MAG GIS and Database Enhancement Study. It is anticipated that these socioeconomic projections may be approved by the MAG Regional Council during the second half of 2005.

TRANSPORTATION NETWORK ASSUMPTIONS

This section describes the development of the highway and transit networks which will be used to perform the 2005 MAG Conformity Analyses for both the conformity redetermination for the FY 2004-2007 Transportation Improvement Program and Regional Transportation Plan, and the FY 2006-2010 Transportation Improvement Program and Regional Transportation Plan. Criteria for identification of "qualifying" projects are defined below. The choice of analysis years is reviewed in Section I, *Proposed Methodology for the 2005 MAG Conformity Analyses*.

Qualifying Projects. Not all of the street and freeway projects included in the TIP will qualify for inclusion in the highway network. Projects which call for study, design, right-of-way acquisition, or non-capacity improvements will not be included in the networks. When these projects result in actual facility construction projects, the associated capacity changes will be coded into the network, as appropriate. Since the networks define capacity in terms of number of through traffic lanes, only construction projects that increase the lane-miles of through traffic will be included.

Generally, MAG highway networks will include only the one-mile grid system of streets, plus freeways. This includes all streets classified as arterials, as well as some collectors. Half-mile streets are not generally coded on the network, because their inclusion would increase computer processing time to unacceptable levels (i.e. multiple weeks per scenario). For similar reasons, local street improvements contained in the TIP will not be coded on the highway network.

Traffic on collectors and local streets not explicitly coded on the highway network will be simulated in the models by use of abstract links called "centroid connectors". These represent collectors, local streets and driveways which connect a neighborhood to a regionally-significant roadway. Centroid connectors will also include travel occurring on public and private unpaved roads.

Highway Networks. The highway networks for the conformity analysis will be developed using the year preceding the first year of the applicable TIP as a base (i.e., 2003, for the FY 2004-2007 TIP and 2005, for the FY 2006-2010 TIP. The base highway network will include all qualifying facilities, including freeways, which are open to traffic on December 31 of the base year. The 2006 "Action" network will include all facilities in the base network, plus qualifying projects in the applicable TIP and freeways scheduled to be open to traffic by December 31, 2006. The 2009 "Action" network will include all qualifying projects through FY 2009 of the applicable TIP, freeways scheduled to be open to traffic by December 31, 2009, and the first twenty miles of the light rail system minimum operating segment, scheduled to open in 2008. The 2015 and 2016 "Action" networks will assume implementation of qualifying highway and transit projects scheduled in the MAG Regional Transportation Plan, through the year 2015 and 2016, respectively, as well as all qualifying projects scheduled in the applicable TIP. The 2026 "Action" network will assume implementation of the entire MAG Regional Transportation Plan, as well as qualifying projects scheduled in the applicable TIP. It is important to note that regionally significant projects in the Apache Junction portion of Pinal County are included in the MAG TIP.

Coding Conventions. Specific coding conventions or criteria will be applied to determine whether a project qualifies for highway network coding. This will result in coding of all arterial streets and some collectors. The coding conventions will be:

(1) Capacity-related projects on existing links or extensions of existing links on the base highway network will be coded in future networks. This will include projects on freeways, the mile-street grid, and half-mile streets already on the base network.

(2) Capacity-related projects which are not on links or extensions of links in the base network will be coded, if the street is considered a logical part of the one-mile street grid system. If the project is on a half-mile street, it will be considered for inclusion on a case-by-case basis. The key factors to be considered in making this assessment will include:
   - the density of current and future development and travel in the area of the project;
   - whether the change may be accommodated without increasing the number of zones; and
   - whether the change is consistent with standard network coding practices.

Transit Networks. Transit networks will be input to the mode choice step of the MAG transportation models to determine the number of person trips made by transit (bus and rail) and, concurrently, the number of auto trips removed from the highway. For the 2006, 2009, 2015, 2016, and 2026 scenarios, the bus service and rail networks will reflect the latest assumptions provided by the Regional Public Transportation Authority. The latest information on bus service and fares will be documented in Chapter Three of the respective conformity analysis documents.

EMISSIONS MODEL INPUT

The MAG transportation models and the highway and transit networks described above will be utilized to estimate daily vehicle travel and transit ridership in the MAG transportation modeling area. The primary input to the air quality modeling process will be transportation model estimates of vehicle traffic by four vehicle classes and speeds for four time periods (AM peak, midday, PM peak, and nighttime) on each highway link, along with the attendant link lengths and coordinate data. A detailed description of the MAG emissions models is provided below in Section IV, *Air Quality Modeling*.

IV. AIR QUALITY MODELING

The models which will be used to estimate emission factors and emissions for the 2005 MAG Conformity Analyses are the latest version of MOBILE6.2, to derive motor vehicle emission factors for CO, VOC, NOx, and PM-10 (non-reentrainment) and M6Link, to add PM-10 reentrainment emissions from PART5, and calculate spatially and temporally allocated onroad mobile emissions using the emission factors from MOBILE6.2 and travel data from the transportation model. A brief description of each model is provided below, along with a summary of the principal input and output data. For the 2005 MAG Conformity Analyses, model inputs not dependent on the TIP or RTP will generally be derived from the Carbon Monoxide Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area (MAG, 2003) for CO; the One-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area (MAG, 2004a) for VOC and NOx; and the Revised 1999 MAG Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area (MAG, 2000a) for PM-10.

The USDOT guidance memo, "Use of Latest Planning Assumptions in Conformity Determinations," dated January 18, 2001, recommends that periodic inventory updates may be used as a source for recent modeling data (USDOT, 2001). The most recent periodic inventory available is the 2002 Periodic Emissions Inventory for Ozone Precursors for the Maricopa County, Arizona, Nonattainment Area (MCESD, 2004). The periodic inventory provides emissions estimates for Maricopa County and the one-hour ozone nonattainment area, but not the eight-hour ozone nonattainment area required for the eight-hour ozone conformity tests. To be consistent with the EPA conformity rule, GIS will be used to develop the 2002 interim emissions estimates for the new eight-hour ozone nonattainment area.

MOBILE6

Description. MOBILE6 is a model developed by EPA for the purpose of estimating motor vehicle emission factors, in units of grams per mile, for specified vehicle fleet, fuel, temperature, and speed conditions. This model calculates carbon monoxide, PM-10 (excluding reentrained dust), and ozone precursor motor vehicle emission factors.

On January 18, 2002, the EPA issued policy guidance on the use of MOBILE6 for transportation conformity, indicating that there would be a two-year grace period before MOBILE6 would be required for new conformity determinations (EPA, 2002a). In the January 29, 2002 *Federal Register,* EPA announced the release of MOBILE6, which triggered the start of a grace period that ended on January 29, 2004. On May 19, 2004, EPA issued a *Federal Register* notice recommending the use of MOBILE6.2 in SIPs and conformity determinations (EPA, 2004c). The latest version of MOBILE 6.2 will be used in the 2005 MAG Conformity Analyses, because it is the latest emissions model available from EPA.

Inputs. There are a variety of inputs to MOBILE6. The use of a locally-derived motor vehicle registration distribution (by model year) of 25 years is recommended. For the conformity analyses, July 2002 vehicle registration data obtained from the Arizona Department of Transportation (ADOT) will be used as input to MOBILE6 for VOC, NOx, and PM-10. January 2003 data will be used to obtain wintertime emissions rates for CO. This data represents the most recent registrations that have been transmitted to MAG by ADOT.

In addition, each modeled scenario may require several runs to reflect an I/M program and no I/M program. The results from these runs are weighted to reflect the fraction of vehicles participating in the I/M program. Fuel parameters, which include fuel volatility and the use of oxygenated fuels (market share and oxygen content), are also input. The model is executed with hourly domain temperatures and an array of speeds by link as estimated by the EMME/2 transportation model. The detailed temperatures and speed data are more accurate than average values, since the relationship between emission factors and temperature/speed is not linear.

Output. The output from the MOBILE6 model includes emission factors by hour, roadway facility type, pollutant, and area type. These emission factors will be utilized by the M6Link program in estimating motor vehicle emissions for the MAG region. The emission factors for the 2005 MAG Conformity Analyses will include the pollutants CO, VOC, NOx, and PM-10.

PART5

PM-10 emission factors for particulate reentrained dust from travel on paved and unpaved roads will be developed using the PART5 model. The calculations of roadway construction emissions will be performed separately, as described later in this section. The National Ambient Air Quality Standards for PM-10 consist of a 24-hour standard and an annual average standard. The PM-10 emissions

calculated for both conformity analyses represent the emissions on an annual average day and apply to both the 24-hour standard and the annual average standard.

Description. The PART5 model was released as a companion model to MOBILE5 by EPA. PART5 estimates reentrained dust emission factors from onroad motor vehicles traveling on paved and unpaved roads. The program provides default data and options for local conditions.

Inputs. The program inputs and format are similar to those used for MOBILE6. The normal user inputs include the scenario year, vehicle speed, registration distribution, and the particle size cutoff (i.e. the largest particle size to be included in the total emissions). Unlike MOBILE6, temperature is not an input to the PART5 model. Another input to the PART5 model is the roadway silt loading values. Silt loading values will be input for freeways, low traffic volume non-freeways, and high traffic volume non-freeways. The silt loading assumptions will be derived from the Revised MAG 1999 Serious Area Particulate Plan (MAG, 2000a) and will incorporate any strengthening of existing control measures indicated in the TIP and RTP.

Output. The output from the PART5 model includes emission factors by speed. The reentrained dust factors used from the PART5 model are the factors labeled "Unpaved Roads Fleet Average (as calculated in AP42 Vol 1 9/88, minus tailpipe and tirewear emissions)" and "Paved Roads Fleet Average (as calculated in draft AP42 Vol 1 3/93, minus tailpipe and tirewear emissions)". These fugitive dust factors are utilized by the M6Link program, along with estimates of unpaved road miles, in estimating motor vehicle fugitive dust emissions.

M6Link

The M6Link system will be used to process emissions for all pollutants included in both analyses. M6Link combines emission factors with traffic volumes to produce onroad vehicle emission totals. M6Link also performs the HPMS factoring discussed previously.

Description. M6Link is a series of computer programs developed to process link data files output by transportation models, in this case EMME/2. These programs calculate emissions for roadway links in the MAG transportation networks. Traffic volumes for four time periods of the day (AM peak, midday, PM peak, and nighttime) and from four vehicle classes for each link are converted into hourly volumes based upon historical data for representative links. These are used to calculate hourly emissions, using emission factors for the appropriate link type, area type, hour, etc. Emission factors are calculated by the MOBILE6.2 model. Emissions for each hour are distributed geographically in the modeling domain based on the grid in which each link is located.

Transportation models are designed to model "average weekday" traffic patterns, which do not necessarily correspond to episodic time periods for which vehicle emissions are modeled. As a result, day of the week and month of the year factors are included in the pre-processor consistent with the methodologies used in the CO Maintenance Plan, One-hour Ozone Maintenance Plan, and

the Serious Area PM-10 Plan. HPMS reconciliation factors are also applied to highway link VMTs in the pre-processor.

Inputs. The transportation data input to the M6Link programs consist of database formatted files that contain link-specific data and a node coordinate definitions file. M6Link also requires as input:

- An adjustment factor table containing factors used to allocate period traffic volumes into hourly traffic volumes.
- Fugitive dust emission factors for paved and unpaved roads (generated by the PART5 model).
- A matrix of emission factors for a range of hours, facility types, area types, vehicle classes, and vehicle ages (generated by the MOBILE6.2 model).
- Factors for the appropriate weighting of vehicles that do and do not participate in the inspection/maintenance program.
- The year being modeled.
- A table appropriate for condensing the 28 vehicle classes modeled by the MOBILE6 model to the four classes produced by the EMME/2 model (non-commercial, light duty commercial, medium duty commercial, and heavy duty commercial).
- The ratio of vehicles participating in the I/M program.

Outputs. The outputs from M6Link include an hourly, gridded onroad mobile source emissions file and several summary files containing emissions and traffic data in the modeling domain.

IMPLEMENTATION MEASURES

Emissions model input files are adjusted, as necessary, to reflect implementation of committed control measures in the applicable SIPs. Control measures from the applicable air quality plans for which emissions reduction credit will be taken in the 2005 MAG Conformity Analyses are presented in Table A-7, located in Section II, *Latest Planning Assumptions*.

For both conformity analyses, emission reduction credit may also be applied for Congestion Mitigation and Air Quality Improvement (CMAQ) projects in the applicable Transportation Improvement Program and prior TIPs, if credit for these measures was not quantified in the applicable air quality plans. The equations, methods, and assumptions to be used in calculating emission reductions attributable to CMAQ projects are described in Methodologies for Evaluating Congestion Mitigation and Air Quality Improvement Funds (MAG, 2004b). In addition, emission reduction credit for the strengthening of existing control measures or implementation of new control measures, as identified in the TIP and RTP, will be incorporated into both analyses, where appropriate.

CALCULATION OF PM-10 EMISSIONS FROM ROAD CONSTRUCTION

PM-10 emissions from road construction will be calculated based on the size (acres) and duration (months) of the road construction projects in the applicable TIP and RTP. Specifically, the number

of lane miles of road to be constructed per year will be developed using data from the applicable TIP and RTP. Assuming that each lane is twelve feet wide, the number of lane miles of road to be constructed will be converted to the number of acres constructed per year. The number of acres constructed per year will be combined with an estimate of average project duration to produce an estimate of acre-months of disturbed soil. The acre-months of disturbed soil will be combined with an emission factor to produce total emissions from road construction per month. The monthly estimate of total emissions will be reduced by a factor of 30 to produce an average daily PM-10 emissions estimate for road construction.

The 2005 Conformity Analyses will use emission factors from the 1994 Regional PM-10 Emission Inventory for the Maricopa County Nonattainment Area (MAG, 1997) and control factors from the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area, Appendices, Volume Two (MAG, 2000b) to calculate PM-10 emissions from road construction. The emission factors and control factors will be obtained from these documents, because the PART5 model does not calculate particulate emissions from road construction. In addition, as further required in Section 93.122(d), the control measures for fugitive dust from construction listed in the Revised MAG 1999 Serious Area Particulate Plan will be applied to reduce emissions to expected levels under the applicable measures. The control level for road construction assumed in the Revised MAG 1999 Serious Area Particulate Plan for 2006 is 72 percent. For the 2005 MAG Conformity Analyses, this control level will be applied to reduce road construction emissions for 2006, 2009, 2015, 2016, and 2025.

REFERENCES

ADEQ. 1995. *Arizona Conformity Rules*. Adopted by the Arizona Department of Environmental Quality, Arizona Administrative Code, Title 18, Chapter 2, Article 14, April 12, 1995.

ADEQ. 2000. *Final Serious Area Ozone State Implementation Plan For Maricopa County.* Prepared by Arizona Department of Environmental Quality. December 2000.

CAA. 1990. *Clean Air Act*, as amended November 15, 1990. (42 U. S. C. Section 7401 et seq.) November 15, 1990.

EPA. 1993. 40 CFR Parts 51 and 93. *Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs and Projects Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act*. U.S. Environmental Protection Agency. Federal Register, November 24, 1993, Vol. 58, No. 225, p. 62188.

EPA. 1995b. 40 CFR Parts 51 and 93. *Transportation Conformity Rule Amendments: Miscellaneous Revisions*. U.S. Environmental Protection Agency. Federal Register, November 14, 1995, Vol. 60, No. 219, p. 57179.

EPA. 1996a. *Clean Air Act Reclassification; Arizona-Phoenix Nonattainment Area; PM-10*. U.S. Environmental Protection Agency. Federal Register, May 10, 1996, Vol. 61, No. 92, p. 21372.

EPA. 1996b. *Clean Air Act Reclassification; Arizona-Phoenix Area; Carbon Monoxide*. U.S. Environmental Protection Agency. Federal Register, July 29, 1996, Vol. 61, No. 146, p. 39343.

EPA. 1997a. 40 CFR Parts 51 and 93. *Transportation Conformity Rule Amendments: Flexibility and Streamlining; FinalRule*. U.S. Environmental Protection Agency. Federal Register, August 15, 1997, Vol. 62, No. 158, p. 43779.

EPA. 1997b. *Clean Air Act Reclassification; Arizona-Phoenix Nonattainment Area; Ozone*. U.S. Environmental Protection Agency. Federal Register, November 16, 1997, Vol. 62, No. 215, p. 60001.

EPA. 1998. *Technical Amendments to Clean Air Act Reclassification; Arizona-Phoenix Nonattainment Area; Ozone; Correction of Effective Date Under Congressional Review Act (CAA)*. U.S. Environmental Protection Agency. Federal Register, February 13, 1998, Vol. 63, No. 30, p. 7290.

EPA. 1999a. 40 CFR Part 52. *Approval and Promulgation of Implementation Plans; Phoenix, Arizona Ozone Nonattainment Area, Revision to the 15 Percent Rate of Progress Plan*. U.S. Environmental Protection Agency. Federal Register, July 6, 1999, Vol. 64, No. 128, p. 36243.

EPA. 1999b. *Adequacy Status of the Maricopa County Submitted CO Attainment Plan for Transportation Conformity Purposes*. U.S. Environmental Protection Agency. Federal Register, November 29, 1999, Vol. 64, No. 228, p. 66634.

EPA. 1999c. *Conformity Guidance on Implementation of March 2, 1999 Conformity Court Decision*. Memorandum from U.S. Environmental Protection Agency. May 14, 1999.

EPA. 2000a. *Adequacy Status of the Maricopa County, Arizona Submitted PM-10 Attainment Plan for Transportation Conformity Purposes*. U.S. Environmental Protection Agency. Federal Register, April 6, 2000, Vol. 65, No. 67, p. 18101.

EPA. 2000b. 40 CFR Part 93. *Transportation Conformity Amendment: Deletion of Grace Period*. U.S. Environmental Protection Agency. Federal Register, April 10, 2000, Vol. 65, No. 69, p. 18911.

EPA. 2001a. 40 CFR Part 81. *Determination of Attainment of the 1-Hour Ozone Standard for the Phoenix Metropolitan Area, Arizona and Determination Regarding Applicability of Certain Clean Air Requirements.* U.S. Environmental Protection Agency. Federal Register, May 30, 2001, Vol. 66, No. 104, p. 29230.

EPA. 2001b. *Adequacy Status of the Maricopa County, Arizona, Submitted CO Attainment Plan for Transportation Conformity Purposes*. U.S. Environmental Protection Agency. Federal Register, October 17, 2001, Vol. 66, No. 201, p. 52761.

EPA. 2002a. *Policy Guidance on the Use of MOBILE6 for SIP Development and Transportation Conformity.* Memorandum from U.S. Environmental Protection Agency. January 18, 2002.

EPA. 2002b. 40 CFR Part 93. *Transportation Conformity Rule Amendments: Minor Revision of 18-Month Requirement for Initial SIP Submissions and Addition of Grace Period for Newly Designated Nonattainment Areas*. U.S. Environmental Protection Agency. Federal Register, August 6, 2002, Vol. 67, No. 151, p. 50808.

EPA. 2003. 40 CFR Part 81. *Determination of Attainment for the Carbon Monoxide National Ambient Air Quality Standard for the Phoenix Metropolitan Area, Arizona*. U.S. Environmental Protection Agency. Federal Register, September 22, 2003, Vol. 68, No. 183, p. 55008.

EPA. 2004a. 40 CFR Part 93. *Transportation Conformity Final Rule: Conformity Amendments for the New 8-Hour Ozone and PM2.5 National Ambient Air Quality Standards, Response to March 1999 Court Decision, and Additional Rule Changes*. U.S. Environmental Protection Agency. Federal Register, July 1, 2004, Vol. 69, No. 126, p. 40004.

EPA. 2004b. 40 CFR Parts 50, 51, and 81. *Air Quality Designations and Classifications for the 8-Hour Ozone National Ambient Air Quality Standards; Early Action Compact Areas with Deferred Effective Dates*. U.S. Environmental Protection Agency. Federal Register, April 30, 2004, Vol. 69, No. 84, p. 23858.

EPA. 2004c. 40 CFR Part 51. *Official Release of the MOBILE 6.2 Motor Vehicle Emissions Factor Model and the December 2003 AP-42 Methods for Re-entrained Road Dust.* U.S. Environmental Protection Agency. Federal Register, May 19, 2004, Vol. 69, No. 97, p. 28830.

EPA. 2004d. *Adequacy Status of the Maricopa County, Arizona, Submitted One-Hour Ozone Redesignation Request and Maintenance Plan for Transportation Conformity Purposes*. U.S. Environmental Protection Agency. Federal Register, August 17, 2004, Vol. 69, No. 158, p. 51079.

EPA/DOT. 1991a. *Guidance for Determining Conformity of Transportation Plans, Programs, and Projects with Clean Air Act Implementation Plans During Phase I of the Interim Period*. U.S. Environmental Protection Agency and Department of Transportation. June 7, 1991.

EPA/DOT. 1991b. *Guidance for Determining Conformity of Transportation Plans, Programs, and Projects with Clean Air Act Implementation Plans During Phase I of the Interim Period*. Extended Applicability of the Interim Conformity Guidance. U.S. Environmental Protection Agency and Department of Transportation. October 25, 1991.

MAG. 1996a. *MAG Conformity Consultation Processes for the Maricopa County Nonattainment Area, Required Under Arizona Conformity Rule R18-2-1405.* Prepared by the Maricopa Association of Governments and approved by the MAG Regional Council February 28, 1996.

MAG. 1996b. *Maricopa Association of Governments Transportation Conformity Guidance and Procedures Required Under Arizona Administrative Code Sections R18-2-1405(R) and R18-2-1429(D).* Prepared by the Maricopa Association of Governments and approved by the MAG Regional Council initially on September 27, 1995 and in revised form on March 27, 1996.

MAG. 1997. *1994 Regional PM-10 Emission Inventory for the Maricopa County Nonattainment Area*. Prepared by the Maricopa Association of Governments. September 1997.

MAG. 1999. *MAG 1999 Serious Area Carbon Monoxide Plan for the Maricopa County Non-attainment Area*. Prepared by the Maricopa Association of Governments. June 1999.

MAG. 2000a. *Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area.* Prepared by the Maricopa Association of Governments. February 2000.

MAG. 2000b. *Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area Appendices, Volume Two.* Prepared by the Maricopa Association of Governments. February 2000.

MAG. 2001a. *Revised MAG 1999 Serious Area Carbon Monoxide Plan for the Maricopa County Nonattainment Area*. Prepared by the Maricopa Association of Governments. January 2001.

MAG. 2001b. *2001 Vehicle Miles of Travel Forecasting and Tracking Report.* Prepared by the Maricopa Association of Governments for the U.S. Environmental Protection Agency. November 14, 2001.

MAG. 2003. *Carbon Monoxide Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area*. Prepared by the Maricopa Association of Governments. May 2003.

MAG. 2004a. *One-Hour Ozone Redesignation Request and Maintenance Plan*. Prepared by the Maricopa Association of Governments. March 2004.

MAG. 2004b. *Methodologies for Evaluating Congestion Mitigation and Air Quality Improvement Projects.* Prepared by the Maricopa Association of Governments. April 16, 2004.

MAG. 2004c. *2002-2003 MAG Regional Travel Time and Travel Speed Study*. Prepared by Carter-Burgess. April 26, 2004.

MAG. 2005. *Draft MAG Travel Demand Model Documentation.* Prepared by the Maricopa Association of Governments. February 2005.

MCESD. 2004. *2002 Periodic Emissions Inventory for Ozone Precursors for the Maricopa County, Arizona, Nonattainment Area.* June 2004.

USDOT. 1999. *Additional Supplemental Guidance for the Implementation of the Circuit Court Decision Affecting Transportation Conformity*. Memorandum from U.S. Department of Transportation. June 18, 1999.

USDOT. 2001. *Use of Latest Planning Assumptions in Conformity Determinations*. Memorandum from U.S. Department of Transportation. January 18, 2001.

APPENDIX

2002 HPMS SYSTEM LENGTH AND DAILY VEHICLE TRAVEL SUMMARIES SUBMITTED TO FHWA BY ADOT IN OCTOBER, 2003

HPMS
ARIZONA
02-01
CY 2002

SYSTEM LENGTH AND DAILY VEHICLE TRAVEL

INDIVIDUAL URBANIZED AREAS WITH GREATER THAN 50,000 POPULATION

(Aggregate length and travel information covering all public highways by class of road for each urbanized area)

Areawide
Table # 2

URBANIZED AREA NAME	POPULATION (1,000)	NET LAND AREA (SQ MILES)	DATA TYPE	FUNCTIONAL SYSTEM						
				PRINCIPAL ARTERIALS			MINOR ARTERIAL	COLLECTOR	LOCAL	TOTAL
				INTERSTATE	OTHER FREEWAYS & EXPRESSWAYS	OTHER				
PHOENIX	2,949	1,054	LENGTH	53	136	601	599	662	8,633	10,684
			TRAVEL (1,000)	8,998	13,530	17,890	10,309	5,636	6,975	63,338
TUCSON	709	312	LENGTH	20	15	172	309	195	2,384	3,095
			TRAVEL (1,000)	1,826	532	5,354	4,310	864	1,681	14,569
YUMA	88	34	LENGTH	4	-	22	24	19	249	318
			TRAVEL (1,000)	76	-	460	274	109	176	1,095
FLAGSTAFF	67	73	LENGTH	17	-	12	26	45	177	277
			TRAVEL (1,000)	468	-	298	151	153	132	1,202
			LENGTH							-
			TRAVEL (1,000)							-
TOTAL	3,813	1,473	LENGTH	94	151	807	958	921	11,443	14,374
			TRAVEL (1,000)	11,370	14,062	24,002	15,044	6,762	8,964	80,204

Units for defining length and travel in this report are miles and vehicle-miles (in thousands), respectively
Figures shown originally submitted to Federal Highway Administration in October, 2003
Figures may not add up to totals due to numerical rounding

HPMS
ARIZONA
03-2
CY 2002

SYSTEM LENGTH AND DAILY VEHICLE TRAVEL

FOR "DONUT" PORTION OF URBAN AREAS DESIGNATED AS NAAQS NON-ATTAINMENT AREAS

(Aggregate length and travel information covering all public roadways by class of road for each urbanized area)

Areawide
Table # 3

DONUT AREA NAME	POPULATION (1,000)	NET LAND AREA (SQ MILES)	DATA TYPE	FUNCTIONAL SYSTEM						
				ARTERIALS			COLLECTORS		LOCAL	TOTAL
				INTERSTATE / URBAN FRWY	OTHER PRINCIPAL	MINOR	RURAL MAJ / MIN	URBAN		
PHOENIX	2,949	1,054	LENGTH	39	83	84	443	196	2,371	3,216
			TRAVEL (1,000)	1,830	972	965	1,753	631	543	6,694
TUCSON	709	312	LENGTH	37	17	21	257		1	333
			TRAVEL (1,000)	1,524	160	243	705		16	2,648
			LENGTH		-					-
			TRAVEL (1,000)		-					-
			LENGTH		-					-
			TRAVEL (1,000)		-					-
			LENGTH							-
			TRAVEL (1,000)							-
TOTAL	3,658	1,366	LENGTH	76	100	105	700	196	2,372	3,549
			TRAVEL (1,000)	3,354	1,132	1,208	2,458	631	559	9,342

Units for defining length and travel in this report are miles and vehicle-miles (in thousands), respectively
Figures shown originally submitted to Federal Highway Administration in August, 2000
Figures may not add up to totals due to numerical rounding

ATTACHMENT B

DRAFT

PROCESS FOR ENSURING EXPEDITIOUS IMPLEMENTATION OF TRANSPORTATION CONTROL MEASURES

Section 93.105(c)(1)(iv) of the federal conformity rule requires a consultation process to be established for making a determination of whether past obstacles to implementation of transportation control measures which are behind the schedule established in the applicable air quality plan have been identified and are being overcome. A determination also is required as to whether State and local agencies with influence over approvals or funding for transportation control measures (TCMs) are giving maximum priority to approval or funding for TCMs. In addition, the process is required to consider whether delays in transportation control measure implementation necessitate revisions to the air quality plan to remove or substitute TCMs or other emission reduction measures.

In February 1996, the MAG Regional Council adopted conformity consultation processes (MAG 1996b) in response to federal and state requirements. The following text from the process M-6 directly addresses the requirement for consultation on the expeditious implementation of TCMs:

> "A consultation process is required for the determination of whether past obstacles to implementation of transportation control measures which are behind schedule have been identified and are being overcome. Also, a determination is required whether State and local agencies with influence over approvals or funding for TCMs are giving maximum priority to approval or funding of TCMs. These determinations are part of the criteria for TIP conformity determinations, specified in the federal conformity regulation 40 CFR 51.418(c)(2) *(now 93.113(c)(2))*."

For the 2005 MAG Conformity Analyses, the anticipated approach will be to provide a comprehensive review of annual progress on the implementation of transportation control measures prepared on a periodic basis by the Maricopa County Environmental Services Department. To avoid duplication of this effort, MAG uses this source of information to meet the federal requirements for documentation of TCM implementation. The most recent Maricopa County report, the 1996 Annual Progress Report, was completed in July 1998.

In addition, MAG annually prepares a summary table which identifies projects and funds allocated in the TIP which implement adopted pollution control measures. This table will be used, together with the TCM implementation annual report described above, as the basis for assessing whether or not implementing agencies are giving maximum priority to approval or funding of transportation control measures.

The TCM findings required under federal conformity regulations will be incorporated as part of the 2005 MAG Conformity Analyses, which will be made available for interagency and public review, including a public hearing, prior to adoption by the MAG Regional Council.

ATTACHMENT C

DRAFT

TYPES OF PROJECTS CONSIDERED EXEMPT FROM CONFORMITY REQUIREMENTS

Under Environmental Protection Agency regulations, a conformity determination is required before a regionally significant road or transit project (regardless of funding source) can be approved by any agency which is a recipient of federal road or transit funds. As part of this conformity determination, regional emissions analyses are required. However, the regulations also identify various types of projects which are exempted from the analytical requirements due to their presumed negligible air quality impacts. Interagency consultation is required to determine whether any of these normally exempted projects "should be treated as nonexempt in cases where potential adverse emissions impacts may exist for any reason."

In February 1996, the MAG Regional Council adopted conformity consultation processes (MAG, 1996b) in response to federal and state requirements. The following text from the process M-5 directly addresses the requirement for consultation on exempt projects:

> "...the Metropolitan Planning Organization (i.e. MAG, for this region) shall initiate consultation for evaluating whether projects listed as exempt from conformity in the conformity regulation should be treated as nonexempt projects where potential adverse emission impacts may exist for any reason. In this consultation process, MAG provides for the participation of the transportation and air quality agencies, as well as the public."

MAG consults on the designation of exempt status for a specific project proposal at the time the project in question is proposed for addition to the TIP and RTP. This consultation process is described in MAG process M-8.

For the 2005 MAG Conformity Analyses, the anticipated approach proposes one minor change to the exempt projects which are contained in the EPA conformity regulations, as listed in the three tables which follow. In Table C-1, the citation for emergency or hardship advance land acquisitions has been revised to 23 CFR 710.503, reflecting the July 1, 2004 EPA transportation conformity rule amendments. Table C-1 identifies the specific types of projects which require no conformity determination of any kind, by any agency. These project types include specific actions involving safety, mass transit, air quality, and other actions likely to have no adverse air quality impacts. Table C-2 lists projects for which a regional emissions analysis is not required. These projects are, however, not exempt from other conformity requirements. In addition, Table C-3 lists traffic signal synchronization projects which are exempt from conformity determinations prior to being funded, approved, or implemented.

TABLE C-1.
PROJECTS NORMALLY EXEMPT FROM CONFORMITY DETERMINATIONS
(From 40 CFR 93.126)

Safety

Railroad/highway crossing.
Hazard elimination program.
Safer non-Federal-aid system roads.
Shoulder improvements.
Increasing sight distance.
Safety improvement program.
Traffic control devices and operating assistance other than signalization projects.
Railroad/highway crossing warning devices.
Guardrails, median barriers, crash cushions.
Pavement resurfacing and/or rehabilitation.
Pavement marking demonstration.
Emergency relief (23 U.S.C. 125).
Fencing.
Skid treatments.
Safety roadside rest areas.
Adding medians.
Truck climbing lanes outside the urbanized area.
Lighting improvements.
Widening narrow pavements or reconstructing bridges (no additional travel lanes).
Emergency truck pullovers.

Mass Transit

Operating assistance to transit agencies.
Purchase of support vehicles.
*Rehabilitation of transit vehicles.
Purchase of office, shop, and operating equipment for existing facilities.
Purchase of operating equipment for vehicles (e.g., radios, fareboxes, lifts, etc.).
Construction or renovation of power, signal, and communications systems.
Construction of small passenger shelters and information kiosks.
Reconstruction or renovation of transit buildings and structures (e.g., rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures).
Rehabilitation or reconstruction of track structures, track, and trackbed in existing rights-of-way.

*Purchase of new buses and rail cars to replace existing vehicles or for minor expansions of the fleet.
Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR part 771.

TABLE C-1. (continued)
PROJECTS NORMALLY EXEMPT FROM CONFORMITY DETERMINATIONS
(From 40 CFR 93.126)

Air Quality

Continuation of ride-sharing and van-pooling promotion activities at current levels.
Bicycle and pedestrian facilities.

Other

Specific activities which do not involve or lead directly to construction, such as:
- Planning and technical studies.
- Grants for training and research programs.
- Planning activities conducted pursuant to titles 23 and 49 U.S.C.
- Federal-aid systems revisions.

Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.
Noise attenuation.
Emergency or hardship advance land acquisitions (23 CFR 710.503).
Acquisition of scenic easements.
Plantings, landscaping, etc.
Sign removal.
Directional and informational signs.
Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities).
Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functional, locational or capacity changes.

* In PM-10 nonattainment or maintenance areas, such projects are exempt only if they are in compliance with control measures in the applicable implementation plan.

TABLE C-2.
PROJECTS NORMALLY EXEMPT FROM REGIONAL EMISSIONS ANALYSIS, BUT NOT FROM OTHER CONFORMITY REQUIREMENTS
(From 40 CFR 93.127)

Intersection channelization projects.
Intersection signalization projects at individual intersections.
Interchange reconfiguration projects.
Changes in vertical and horizontal alignment.
Truck size and weight inspection stations.
Bus terminals and transfer points.

TABLE C-3
TRAFFIC SIGNAL SYNCHRONIZATION PROJECTS
(From 40 CFR 93.128)

Traffic signal synchronization projects may be approved, funded, and implemented without satisfying the requirements of this subpart. However, all subsequent regional emissions analyses required by sections 93.118 and 93.119 for transportation plans, TIPs, or projects not from a conforming plan and TIP must include such regionally significant traffic signal synchronization projects.

ATTACHMENT D

DRAFT

IDENTIFICATION OF PROJECTS WHICH REQUIRE PM-10 HOT-SPOT ANALYSIS

Under Federal conformity rule 40 CFR 93.116, a consultation process is required for identification of projects located at sites which have vehicle and dispersion characteristics which are essentially identical to those at sites which have PM-10 violations verified by monitoring, and therefore require PM-10 hot-spot analysis. PM-10 hot-spot analyses are to be conducted in accordance with the methodology requirements of Section 93.123.

In addition, PM-10 hot-spot analysis is required for new or expanded bus and rail terminals and transfer points which increase the number of diesel vehicles congregating at a single location. The EPA regulations allow the U.S. Department of Transportation to exclude such projects in some cases based upon their size, configuration, and activity levels. Also, if a quantitative analysis is not conducted, a qualitative consideration of local factors is required. To assist in preparing quantitative analyses, the Federal Highway Administration issued *Guidance for Qualitative Project Level "Hot-Spot" Analysis in PM-10 Nonattainment and Maintenance Areas* in September 2001.

In July 1994, the MAG Regional Council adopted Conformity Procedures in response to federal requirements. The following excerpt from the MAG Conformity Procedures directly addresses the requirement for consultation on identification of projects which require PM-10 hot-spot analysis:

> "Section 51.454(d) (*now Section 93.123(b)(iii)(4)*) states that its requirements for quantitative PM-10 hot-spot analysis are not applicable until the U.S. Environmental Protection Agency releases modeling guidance and announces in the *Federal Register* that these requirements are in effect. As of the end of June 1994, EPA has not taken these actions, and the hot-spot modeling requirements have not yet been triggered. Similarly, the EPA regulations regarding transit terminals will apply only after the hot-spot modeling requirements take effect. To meet the requirements of Section 51.402(c)(1)(v) (*now Section 93.105(c)(1)(v)*), it is proposed that if and when the PM-10 hot-spot modeling requirements become effective, they be applied within a one-mile radius of any site where a PM-10 violation has occurred within the last three complete calendar years."

For the 2005 MAG Conformity Analyses, the anticipated approach for meeting the requirements of Section 93.116 are that if and when the PM-10 hot-spot modeling requirements become effective, they be applied within a one-mile radius of any site where a PM-10 violation has occurred within the last three complete calendar years. With regard to transit terminals, MAG proposes to abide by any USDOT policy regarding exclusion of smaller terminals when available. It is important to note that under 40 CFR 93.116, PM-10 hot-spot analysis is required for projects funded by the Federal Highway Administration or the Federal Transit Administration, and are not required for non-Federally funded projects. In the July 1, 2004 transportation conformity rule amendments, EPA did not make a final decision on changes to the existing PM-10 hot-spot analysis requirements proposed on June 30, 2003. On December 13, 2004, EPA requested further public comment on proposed additional options for PM-10 hot-spot analyses in a supplemental notice.

Section 93.123(b)(iii)(4) states that, "the requirements for quantitative [PM_{10} hot-spot] analysis... will not take effect until EPA releases modeling guidance on this subject and announces in the Federal Register that these requirements are in effect". Since EPA has not taken these actions, the hot-spot modeling requirements have not yet been triggered. Similarly, the EPA regulations regarding transit terminals will apply only after the hot-spot modeling requirements take effect.